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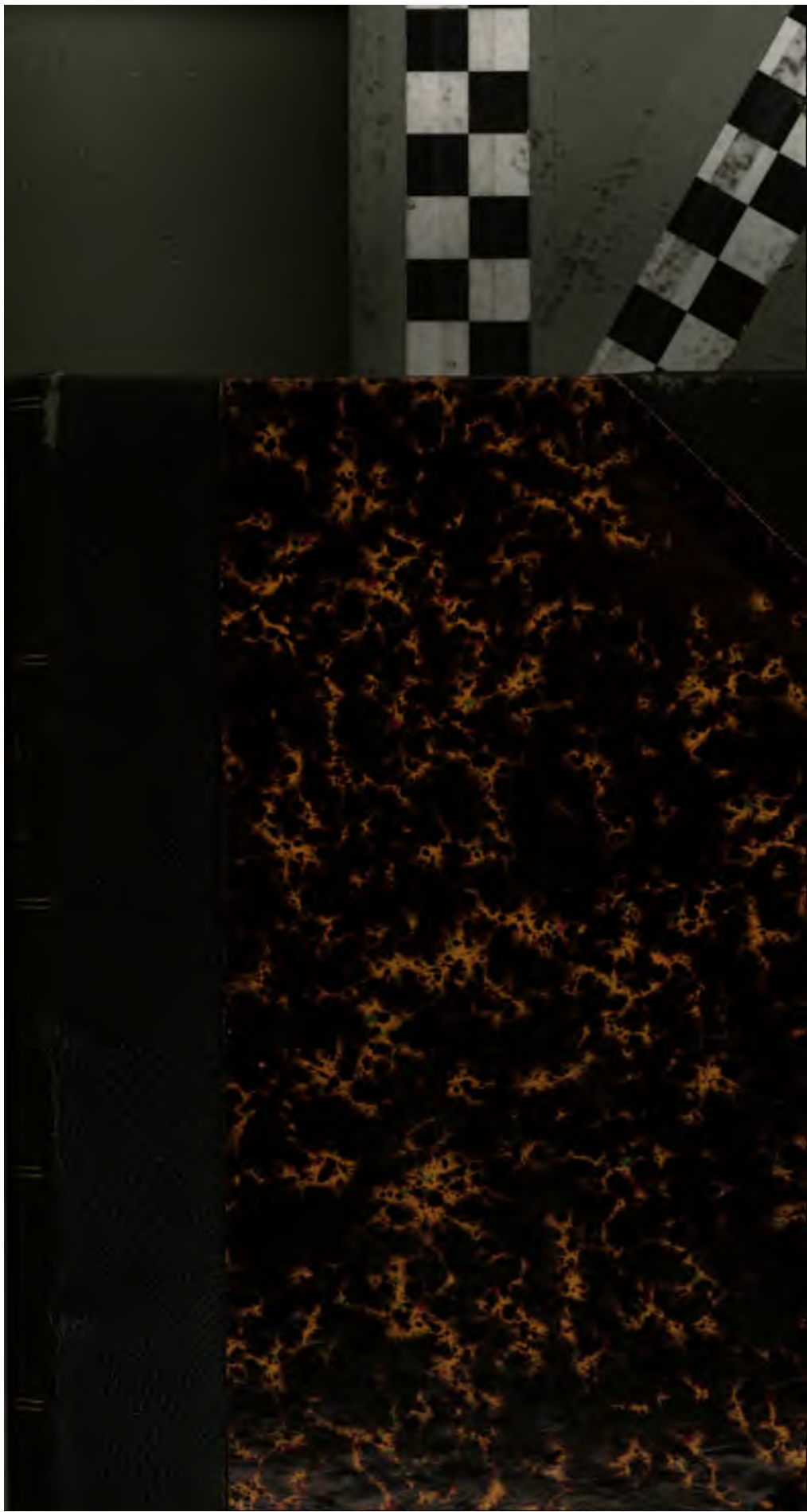
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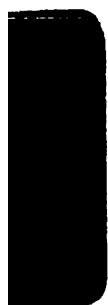
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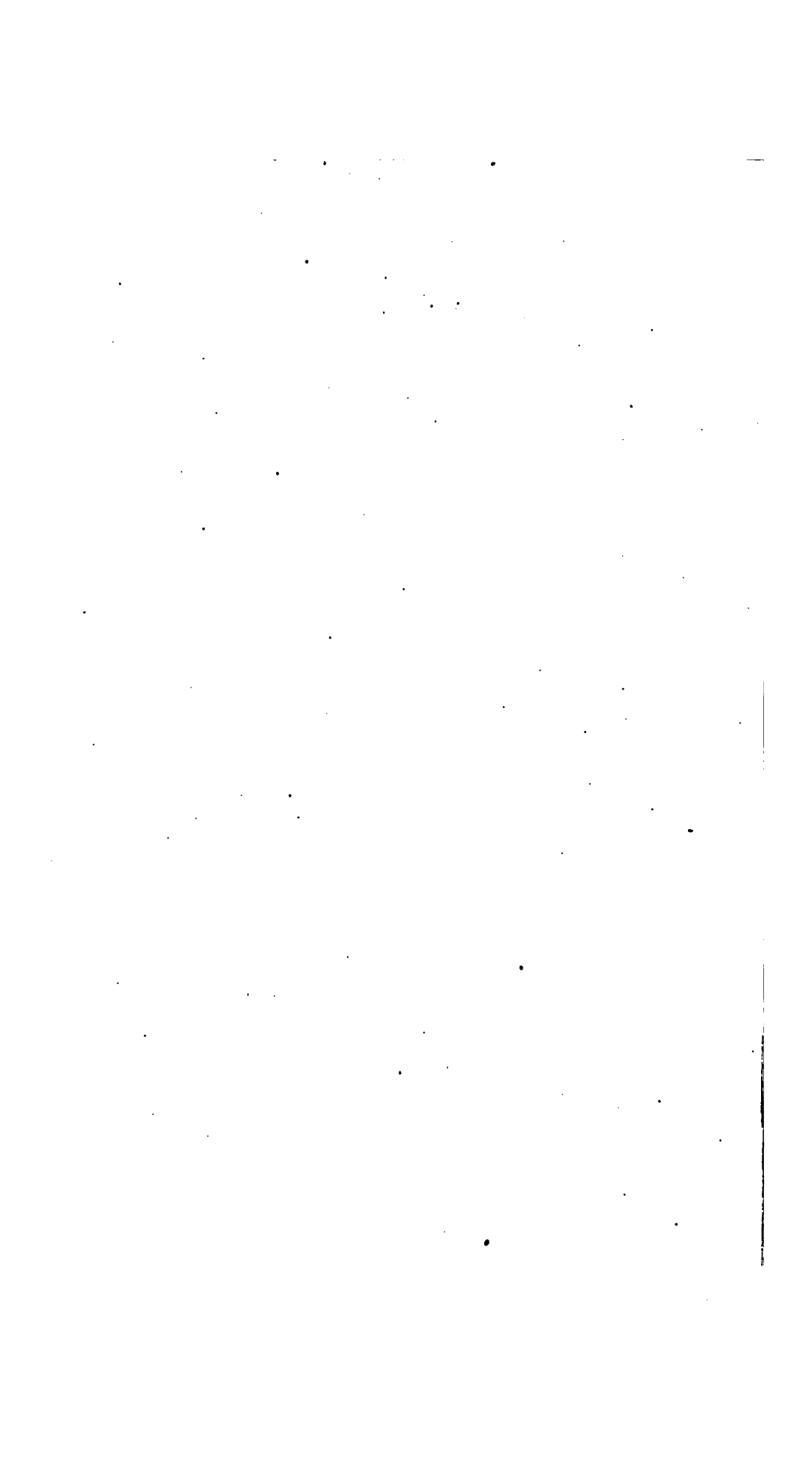
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THE
DUBLIN JOURNAL
OF
MEDICAL SCIENCE

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VOL. CXXIII.
JANUARY TO JUNE, 1907.

DUBLIN :
FANNIN & COMPANY, LTD., GRAFTON-STREET.
LONDON: SIMPKIN, MARSHALL & CO.
EDINBURGH: JAMES THIN.
PARIS: HACHETTE & CO.

1907.

CATALOGUED
AUG 30 1907
E. H. L.

DUBLIN : PRINTED BY JOHN FALCONER, 58 UPPER MACKVILLE-STREET.

9499

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

JANUARY 1, 1907.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Catalysis and Some of its Applications to the Arts and Medicine.** By WALTER G. SMITH, M.D., F.R.C.P.I.; King's Professor of Materia Medica, School of Physic; Physician to Sir Patrick Dun's Hospital.

CATALYSIS.

Chemical Affinity.—Of all the great old-standing problems of chemistry that of chemical affinity has been least developed. Chemical affinity is the name given to that property of bodies in virtue of which when brought into contact they react with each other, forming new bodies. It is the driving power of a chemical reaction. There is always a change of energy, and, in fact, transformation of energy is at the root of every chemical or physical process. The term affinity (*affinitas*—i.e., relationship) reaches back to Greek philosophy. The Grecian philosophers considered it as somewhat similar to human qualities—e.g., sympathy and antipathy. The meaning now attaching to it in chemistry is exactly the converse

* Read before the Dublin Biological Club, February 13, 1906; and before the D. U. Exper. Assoc., February 20, 1906.

of the ancient notion: not "likes" but "unlikes" attract each other. The conception, however, of affinity as an attractive force is of little or no use in explaining chemical phenomena. What the intimate nature of chemical affinity really is we know no more to-day than did the chemists of old.

No satisfactory hypothesis has yet found acceptance among scientific men, and I will not spend time in discussing the different hypotheses which have been advanced.

Light is, however, beginning to dawn upon the darkness, and it comes from four quarters:—

(a) The introduction of mechanical ideas into chemistry. For this we have to thank Galileo. Chemical statics and dynamics are now securely established, and have yielded fruitful and stimulating results in the hands of van 't Hoff, Arrhenius, and many others.

(b) The introduction of quantitative determinations of the rate and amount of chemical change, as distinguished from vague data, such as the older tables of affinity and the like. One of the main objects of scientific chemistry is to measure the intensity of chemical affinity in different cases.

(c) The bringing of chemical problems under the controlling sway of mathematical calculation. The higher walks of theoretical chemistry and of physiology are becoming difficult or impossible to follow without some mathematical training.

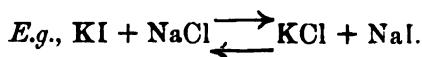
The modern chemist may almost say with Descartes:—"I will accept nothing as true but what is declared (from the first principle that matter can be divided, figured, and moved in all sorts of ways) by direct evidence which can take rank of a mathematical demonstration."

(d) The growth and extraordinarily rapid development of physical chemistry.

The three forms of energy which normally undergo alteration in value when a chemical reaction occurs in solution are the chemical energy, the heat energy, and

the osmotic energy (B. Moore). The algebraic sum of the three alterations must be zero.

We have gradually got accustomed to the mode of thought involved by saying that chemical equilibrium is dynamical rather than statical. Chemical equilibrium between two substances in solution really results only when the velocities of the opposing reactions balance each other.



In this department Guldberg and Waage's investigations (1867) mark an epoch. A fundamental idea to grasp is that of chemical velocity.

This term must not be confounded with the meaning attached to the term in physics. In mechanics velocity is defined as the rate of motion of a point.

$$v = \frac{x}{t} \text{ e.g., } \frac{100 \text{ ft.}}{10 \text{ sec.}} = v. \text{ of 10 feet per second.}$$

In chemistry we mean by velocity the *rate of material transformation* of a substance. Chemical velocity is the ratio of the amount of substance transformed (in a given process) to the time required for its transformation.

$$v = \frac{x}{t} \text{ or } -\frac{dx}{dt} = kc \text{ (} c = \text{concentration, i.e., quantity of substance in unit volume).}$$

E.g., inversion of cane sugar—(Law of Mass Action, Wilhelmy, 1850).

(a) In water only. This takes place with extreme slowness.

(b) By acids. Lessen the resistance—i.e., increase the velocity. For chemical conductivity is the reciprocal of the resistances.

(c) By Pt.-black.

The actual mechanism of inversion is still unknown.

Now, many circumstances and conditions, such as pressure, temperature, &c., are able to influence the velocity of a reaction. For example, take phosphorus. Phosphorus matches, when kept in their boxes, are really

undergoing slow combustion—so slowly that no perceptible change is apparent even after a long time. But if we raise the temperature slightly by friction active combustion at once sets in. On the other hand, reduction of temperature notably retards chemical reactions, and many interesting observations have been recently made upon the effects of very low temperatures upon chemical change. Oxygen, at elevated temperatures, a highly reactive element, is strikingly inert at ordinary temperatures, not because its affinity but because its reactivity is small (Nernst). Metallic sodium has no action on dilute alcohol at -80°C . (Pictet).

In this connection we bethink ourselves of febrile phenomena, and are led to reflect how far pyrexia may alter the velocity of chemical reactions that go on in our own bodies.

The chief topic to which I wish to direct your attention in this paper is that known as catalysis (Berzelius, 1835), or, contact action (Mitscherlich).

An immense number of chemical reactions are known in which two substances, which, by themselves, appear to undergo little or no change, are rapidly altered under the influence of a third body.

$$AB + CD = \text{nil (apparently)}$$

$$AB + CD + x = AC + BD.$$

Dr. H. Armstrong (*Encyclop. Brit.*, xxvi., p. 734) considers there can be little doubt that the evidence is sufficient to justify the conclusion that chemical interactions are not generally of the simple form:—

$$AB + CD = AC + BD.$$

Their occurrence is, as a rule, dependent on the introduction of some "third component" into the system. It is even probable that this is a rule absolute.

Perhaps this means, in accordance with Faraday's doctrine of the unity of chemical and electrolytic change, that a circuit of change must comprise three distinct terms or components, one of which must be an electrolyte.

Hence, for example, the remarkable effects, in many

cases, of the introduction of a minute trace of moisture in determining a chemical reaction. A *completely dry* mixture of CO and O cannot be made to explode by means of the electric spark.

When we reflect that the whole group of enzyme or ferment actions comes under the head of catalysis it is needless to enlarge upon the significance of catalytic phenomena in medical science, and in the problems of organic life.

Doubtless, also, some of the events concerned in photography belong to this class.

I hope presently to show some illustrative experiments, but let us first seek for a working definition of catalysis. Taking the most common case of chemical interaction—*i.e.*, in homogeneous liquid solutions—I will accept Ostwald's definition.

A catalyst, or catalyser, is any substance which alters the velocity of a chemical reaction without itself appearing in the final product. A catalyser oils the wheels of a chemical reaction, and, like the lubricating oil of an engine, is not itself used up. The essential point is the acceleration.

$$AB + CD + x = AC + BD.$$

The alteration may consist either in hastening or in slowing the reaction. In a large number of cases the numerical value of the acceleration or retardation of the reaction has been experimentally determined. Bredig has made 850 measurements of reaction velocities.

There seems to be no kind of chemical reaction which cannot be catalytically influenced, and no chemical substances, whether elements or compounds, which cannot act catalytically.

E.g., Hydrogen ions, the essential radical of all acids, accelerate most chemical reactions. On the other hand, some enzymes act selectively, and exert their accelerating action only upon certain specific substances. The beautiful and wonderful investigations of E. Fischer have shown that the very slight physical differences, known as

stereo-chemical, can bring about alteration in the action of a given enzyme.

ENZYMES (SOLUBLE FERMENTS).

The catalytic action of ferments has only within the last few years been carefully studied from the standpoint of dynamical chemistry (Cohen). Yet the process is one known to the ancients, although not baptised with its modern name. "Catalysis is as old as drunkenness, for alcohol is produced by fermentation, and ferments are catalysts" (Duncan).

An enzyme may be looked upon as a catalyst which arises in the organs during the life of the cell, and by whose action it discharges the greater part of its duties.

Digestion and assimilation are from beginning to end regulated by enzymes, and without their aid the maintenance of life would be impossible. Physiological chemistry is largely catalytic chemistry. In plants, chlorophyll is the master catalyst, or energy transformer. Chlorophyll possesses the very specific power of converting light energy into chemical energy.

Seventy years ago Berzelius, with acute insight, had perceived the decisive importance that attaches to enzymes in the economy of the living being. What is the physico-chemical criterion of the phenomena of life? Shall we not answer—"An automatically regulated production and use of chemical energy, for the animation, maintenance, and increase of the living thing" (Ostwald)?

There are three principal means of influencing the velocity of chemical reaction—viz., temperature, concentration, and catalysis, and, for living beings, the greatest of these is catalysis.

The difficulties of investigating enzyme actions quantitatively are enormous, and little progress has yet been made. A *finite* amount of enzyme can convert an *infinite* amount of material. Pepsin can dissolve in seven hours 500,000 times its weight of fibrin (Schäfer).

In ferment action, the chemical energy of the resulting

products is always less than that of the substances from which they were formed (as shown by heats of combustion). This is but a special case of the important generalisation that all reactions advance only in the sense of a diminution of free energy.

Of great interest are the analogies recently discovered by Bredig and Müller von Berneck, between the action of enzymes and the action of a number of colloidal solutions (termed *sols*) of very finely divided metals, especially platinum.

This colloidal (*i.e.*, indiffusible) Pt is much more active than spongy Pt, or, "platinum black." It will "invert" cane sugar, blue guaiacum, &c. The platinsol is readily prepared by passing a current of high potential between two platinum electrodes under distilled water (Bredig).

Strongest solution obtainable = 1 gm. atom in 1300 L. Quantitative measurements are now possible for first time. Cf. Bredig and R. Müller v. Berneck, *Ztsch. f. physikal. Chem.* 31, 258 (1899). Bredig and Ikeda, *do.*, *do.*, 37, 1 (1901). Brode, *do.*, *do.*, 37, 257 (1901).

3000000 mgm. of Pt. in 1 cc. of solution catalyses peroxide of hydrogen. (Experiment shown.) Schönbein was of opinion that dissociation of H_2O_2 by Pt was the prototype of organic fermentations.

These "inorganic ferments," as they are somewhat fancifully called, can be "paralysed," or, at any rate, inhibited, by various poisons—*e.g.*, H_2S :HCN.

1 grm. molecule (27 grm.) of HCN in 20 million liters (0.0014 mgrm. of HCN per liter) suffices to decrease the velocity of catalysis of O_2H_2 by Pt by one-half.

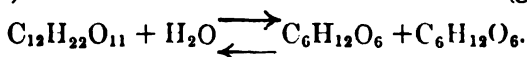
It is a remarkable fact that the hæmic and respiratory poisons, HCN and H_2S , should be the very ones to act as paralysing agents. A point of difference should be noted. The reactions that are catalysed by organic ferments are incomplete—*i.e.*, there is a *limit*. The catalysis of H_2O_2 by platinsol is complete. Hæmoglobin has two stages of oxidation—oxyhæmoglobin and met-hæmoglobin—and the investigations of Schützenberger and

others show that in oxyhæmoglobin half the oxygen is more easily split off than the other half. The first half is to be regarded as peroxide oxygen, of the type of H_2O_2 , the second half as oxide oxygen (Nernst). This bears upon the comprehension of the guaiacum test for blood, and must have a deep physiological meaning.

Organic ferments are probably dual bodies. Pancreatic juice contains no trypsin, but trypsinogen. When it meets *succus entericus* trypsin is liberated. The discovery of entero-kinase (a "ferment of ferments") has led to the discovery of other kinases, and a whole field of exploration of mutual action of ferments has been opened up. There are also anti-ferments—*e.g.*, anti-rennet, anti-pepsin, &c.

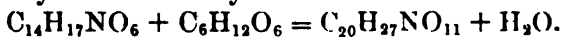
The old difficulty of why the alimentary canal does not digest itself is thus capable of a rational explanation. Similarly, anti-trypsin is said to exist ready formed under normal conditions in the cells of intestinal worms.

There are also now known what may be called *reversing* ferments. Croft Hill has proved that, in *very concentrated solutions*, maltase, the ferment of malt, can cause the condensation of two molecules of hexoses into a di-saccharide (revertose). In *dilute solution*, as has been long known, the ferment hydrolyses the di-saccharide (maltose) into two molecules of mono-saccharide (glucose).



So, thus, ferment actions come under the head of reversible reactions, and enzymes are not devoid of synthetic powers.

Still more notable is Emmerling's discovery. He has shown that amygdalin, which is decomposed by emulsin into glucose, benzaldehyde, and HCN, can be reconstructed from the glucoside of mandelic nitrile and glucose by means of the yeast maltase.



Lactase (a ferment from *Kefir*) can, under suitable conditions, condition the formation of iso-lactose from a solu-

tion containing a mixture in equal concentration of its constituent hexoses—viz., glucose and galactose.

Theoretically, in fact, all reactions are reversible.

INDUSTRIAL APPLICATIONS OF CATALYSIS.

These are innumerable, but time will not allow of reference to more than one or two examples. Some of them have revolutionised important chemical industries.

(a) *Sulphuric Acid*.—The uses of sulphuric acid are countless. In 1904 its total consumption exceeded eight billion pounds weight. All the sulphuric acid is made from three cheap things—viz., SO_2 , air, water. The difficulty is to marry the SO_2 and the oxygen. In the old leaden-chamber process the transfer of atmospheric oxygen to the SO_2 was catalytically effected by the aid of oxides of N. It has been long known (Phillips, 1831) that SO_2 and air easily interact in presence of Pt. After many trials, and at much cost, the Badische Anilin und Soda-Fabrik (Ludwigshafen) have triumphantly utilised this principle. The hot SO_2 gas and air are dried, cooled, and passed over platinised asbestos. Sulphuric acid is readily produced, and 200,000 tons were manufactured by this "contact-process" in 1904. At Mannheim Fe_2O_3 is employed as the catalyser.

(b) *Indigo*.—The commercial synthesis of indigo has reversed the economic relations of States. A few years ago £5,000,000 worth of natural indigo were exported annually from India. The distinguished German chemist, Baeyer, spent thirty-five years' labour on the chemical study of indigo. Indigo is now made from naphthalene, a cheap and abundant hydrocarbon, C_{10}H_8 .

By a lucky accident it was discovered (1897) that the presence of a trace of Hg (or Hg and Cu) renders easy the conversion of naphthalene into phthalic acid by H_2SO_4 , and from this body indigo is derived.

In 1903 the German export of artificial indigo was worth over £1,000,000.

In 1904 the export of natural indigo from India had

fallen to less than 30 per cent. of what it had been. Now, artificial indigo is actually imported into India. The artificial indigo is purer and cheaper.

The "Badische Fabrik" now uses annually 10,000 tons of naphthalene, 10,000,000 pounds of NaCl, and 50,000 tons of H_2SO_4 in the process. The amount of indigo which this represents would require more than a quarter of a million acres of land for its cultivation. The indigo planter's occupation is gone.

(c) *Catatype Photographs*.—These are produced without sunlight (Ostwald and Gros). The face of a photographic negative is quickly rubbed with cotton dipped in H_2O_2 and ether. This is allowed to remain for an instant. Wherever metallic Ag has been deposited, the H_2O_2 is catalysed into H_2O . Where there is no reduced Ag, then H_2O_2 is left unaltered. The negative is now placed on gelatinised paper in a "printing frame," and immediately transferred to an alkaline solution of Mn SO_4 . The picture develops in brown tones. With an alkaline silver solution the print will be black.

APPENDIX.

The following experiments were demonstrated, most of them by lantern:—

1. Decomposition of chromic chloride by a minute trace of chromous chloride.
2. Solution of pure tin in HCl, effected by a trace of PtCl_4 .
3. Action of Pt-black on H_2O .
4. Paralysing action of HCN on (3).
5. Action of platinsol on H_2O_2 .
6. Paralysing action of HCN on (5).
7. Reaction of guaiacum + blood + H_2O_2 .
8. Reaction of guaiacum and Pt-black.
9. Action of emulsin on amygdalin and on salicin.
10. Colour-reaction of guaiacum with potatoes (raw, boiled), and on turnip.

ART. II.—*A Study of the Complications arising in Five Hundred and Fifty Consecutive Cases of Scarlet Fever treated at the Grove Hospital, Tooting, London, S.W.*

By ROBERT POUNDEN BEATTY, B.A., M.D. Univ. Dubl.

THE entire subject of scarlet fever has filled many volumes, and has absorbed the attention of many investigators of its pathology and bacteriology; so that it would be impossible to condense it into one paper. For this reason it is my intention to confine myself to a study of the complications met with in the cases, mentioned in the title, which were discharged from one of the Metropolitan Asylums Board's Fever Hospitals during the months of August, September, and October, 1906, and which represent about a fourth of the cases treated there during the year.

Among the acute infectious diseases to which man is liable scarlet fever stands out as being one of the most fatal. Indeed, at one time it caused the highest death-rate of all the infectious diseases among the inhabitants of Great Britain.

In the decennial period from 1871 to 1880 the death-rate from this cause alone was 716 per million of the living population. This high rate of mortality has diminished markedly during recent years—falling to 182 per million in the period from 1891 to 1895, and to 135 from 1896 to 1900.

In spite, however, of this decrease in the number of deaths due directly to this disease it is still a source of danger to the community on account of the seriousness of certain of the complications which are of common occurrence among those who suffer from it—namely, nephritis, endocarditis, and pericarditis, adenitis, with often subsequent abscess formation, and otitis media, which, fortunately, does not very frequently lead to in-

* Being a Thesis read for the Degree of Doctor of Medicine of Dublin University, December, 1906.

fection of the lateral sinus, and other neighbouring parts. Rhinitis and the other more trifling conditions due to the local infection of sores or wounds with pus-forming organisms are of less serious consequence.

As the admissions of scarlet fever cases increase rapidly during the autumn, reaching the annual maximum towards the latter part of November, there is a great demand for beds. To cope with this a large proportion of the patients are transferred to one of the Board's Convalescent Hospitals in Kent. Of course, only those who are free from complications, with the exception of nasal or ear discharges, are removed, and these only towards the end of the fourth week of the disease.

Of the 550 cases, 414 were transferred, the remaining 136 being treated during the full period of their illness and convalescence at the "acute" hospital. Among the former, 49 were not transferred until the end of the fifth week, and several even as late as the twelfth week, owing to various complications.

There were no deaths among those transferred, but of those not transferred there were eleven, giving a mortality of 2 per cent. of the total.

Five of these were of a severe septic nature, the chief local symptoms being confined to the mouth, fauces, and submaxillary and cervical glands; one developing an ulcer of the soft palate, which became perforated, while another suffered from arthritis.

Three died from nephritis, one suffering from whooping-cough as well. One child of a year and nine months died of broncho-pneumonia. Another developed general septicæmia with double otitis media, followed by mastoiditis, which was treated by operation, but without success. The eleventh, an infant of five months, succumbed to otorrhœa, pneumonia, and enteritis ten days after admission to hospital.

The importance of the complications of scarlet fever has already been referred to, and amongst these nephritis is the most likely to affect the after-health of the indi-

vidual, and to seriously interfere with his ability to contend with the stress of labour subsequently.

It is met with in this disease in degrees varying from the presence of the merest trace of albumen in the urine, detected, perhaps, but once during the entire course of the illness, to the most severe forms of renal inflammation, resulting in the death of the patient, or, in those who survive, damaging the renal filter to such an extent as to make those feeble and delicate who would otherwise have been robust and of service to the community.

In discussing this subject and dealing with individual cases one must draw an arbitrary line of distinction between those which only show a temporary albuminuria and those which are of the more severe type of true nephritis, with hæmaturia, anæmia, and the other classical signs of the disease.

This line, though arbitrary (when one considers that the presence of albuminuria, even to a slight degree, is evidence that the kidney has been somewhat damaged, and is really in a mild state of inflammation), is, nevertheless, very distinct when one takes the clinical aspect alone into consideration. Further, Professor G. Dieulafoy,¹ of Paris, describes what he calls "*la dissociation des actes morbides du rein.*" Speaking of scarlatina he says, "Here, again, we find the dissociation of the morbid acts of the kidney; on the one hand albuminuria lasting for years without the coincidence (adjonction) of any other symptom, and, on the other, symptoms of Brightism (*brightisme*) with or without the coincidence of albuminuria.

Looking over those cases which showed albuminuria only, and of which there were 89, or 14.36 per cent., one may divide them into those which passed traces during the acute febrile stage and those which developed the condition later in the disease.

Of the former class there were 25 cases, or 4.54 per cent. of the total. Amongst these the albuminuria was of a very transient nature in 17, lasting for one or two

days only, and not reappearing during the remainder of the illness. In two the urine became normal in two days, and subsequently showed traces, which again passed off as convalescence advanced. One continued to pass small quantities of albumen up to the nineteenth day, when the urine became free, and did not show any during the subsequent weeks. The remaining five continued to pass albumen, which increased in quantity, and in a few days developed the definite clinical picture of scarlatinal nephritis.

This albuminuria of the febrile stage of scarlet fever is not to be considered as a condition belonging only to this disease, but must be looked upon as being of the same nature as that which one sees during the fastigium of any acute febrile condition, and which passes off with the cessation of the fever. It has been ascribed to slight changes in the protoplasm of the glomeruli interfering with the power of the epithelium to prevent the passage of albuminous substances through it from the blood-stream.² These changes being brought about by the pyrexia itself pass off when this exciting cause ceases.

Such cannot be considered the cause of albuminuria in the second class of cases—namely, those in which albumen appears in the urine later in the disease, as this generally occurs at a time when the temperature is normal. It is most frequently seen during the second and third weeks and early in the fourth.

There were 61 of these cases. In 53 only traces were present in the urine, which became normal within six days of the first appearance of the condition, no further signs of renal mischief being noted.

One occurred first on the sixth day, two on the seventh, twenty during the second week, fourteen during the third, and twelve during the fourth. The greatest daily incidence was on the eighth day, when six began to pass albumen; five on the eleventh, four each on the sixteenth and seventeenth, and three each on the twenty-third and twenty-fourth days.

The most persistent of these was a boy of eleven. Albumen first appeared on the twentieth day, but only traces were observed. This lasted until the forty-first day, that is, for three weeks, when it cleared up, the urine remaining normal until his discharge on the sixty-fourth.

It is interesting to note that 45 of the 53 cases, or almost 85 per cent., began before the twenty-fifth day, while only 4 occurred later than the fourth week; and also, that this incidence corresponds to a marked extent with that of true nephritis, for after the twenty-fifth day one comparatively seldom meets cases of either albuminuria or nephritis in scarlet fever commencing. It also points to the fact that in all probability the minor condition is but a very mild form of the latter, or else that it is due to a condition of the kidneys which renders the individual more susceptible to the cause, most likely of a bacterial nature, of true scarlatinal nephritis, to which I shall refer later.

There were seventeen cases of nephritis, or 3.1 per cent. of the series. Thirteen of these showed definite hæmaturia. The remaining four I have classified along with them, for, although blood could not be demonstrated, the general condition of the patient, and the presence of marked albuminuria, with a coincident pyrexia for a considerable time, warrants my so doing in each case.

A prominent feature in most of these was severe adenitis. In thirteen it preceded the actual onset of albuminuria by one or two days, but in some it did not appear until after this had occurred. In eight there were severe congestion and œdema of the fauces and tonsils on admission. In other words, there was more local inflammation than is usually seen in simple uncomplicated cases.

From nephritis there were two deaths. The first, a girl, aged ten, was admitted on the second day of the disease with very severe faucial inflammation, stomatitis, great glandular enlargement, arthritis, and nasal discharge. This is what is frequently described as a

"septic" case, implying the presence of a secondary septic infection superimposed on the scarlet fever itself, or what used to be called "*scarlatina anginosa*."

A faint trace of albumen appeared on the fourth day, and increased in quantity up to the sixteenth day, when she died. There was considerable pyrexia throughout her illness.

The second case, a boy, aged seven, was admitted in a very neglected condition late in the disease, probably about the end of the third week, desquamating freely. No definite history could be obtained. The eyes were puffy and the face swollen. The fauces were normal, and there was no marked glandular enlargement. Albumen was present on admission, and persisted till his death, two days later.

Blood was not detected in either of these cases, but, as Dickinson,³ in his monograph on the "*Pathology and Treatment of Albuminuria*," says, in reference to scarlatinal nephritis:—"The worst cases are those in which no blood makes its way into the urine."

Of those who survived, one, a man of twenty-four, developed nephritis on the sixteenth day, and considerable adenitis on the seventeenth. Blood was present from the twenty-third to the thirty-second, when it was no longer detected, but albumen was still present on his discharge on the sixty-seventh day.

A boy, aged ten, who was admitted with severe adenitis, and developed nephritis on the tenth day, was still passing albumen in small quantities when transferred to the Convalescent Hospital on the fifty-second day.

With the exception of these two, and three cases to be described later, all the 539 surviving patients left hospital having passed urine free from albumen for some time previous to their discharge.

Having now dealt with the cases of transient albuminuria and nephritis let us turn to those of a more permanent nature, which do not strictly come under either of these heads.

There were three of these. One, a boy, two and a half years of age, developed pertussis late during convalescence. He began to pass albumen on the eighty-seventh day after the onset of scarlatina, when a thick deposit was found to be present. This continued until the one hundred and sixth day, when he died.

The next, a boy of fifteen, was admitted—so far as one can judge—on the thirteenth day. Albumen appeared on the seventeenth day, and continued until the forty-fourth, when it disappeared, not returning during the remainder of his stay—some ten days.

The third was a boy of seven and a half, who was admitted on the second day of the disease, with a considerable quantity of albumen in the urine, which continued constantly until his discharge on the one hundred and third day. Probably, in this case, the albuminuria was due to some condition from which he had suffered before developing scarlatina.

With regard to the microscopic examination of the urinary sediments of cases of acute nephritis I have found that in the acute stages blood corpuscles and epithelial and blood casts were present, as might be expected. Later hyaline and granular casts were seen with isolated epithelial cells and leucocytes.

In cases of transitory albuminuria I have not found casts in those which showed but traces. But where a heavier deposit has been thrown down on boiling and acidulation there were hyaline and granular casts in a few.

The microscopical appearances of the sediments are much as one would find in similar conditions of the kidney, apart from scarlet fever.

The comparative frequency with which severe pharyngitis and adenitis accompany or precede nephritis in scarlet fever suggests that there is some connection between the causes of these conditions, or that they arise from a common cause; and the theory that scarlatinal nephritis is bacterial in origin is supported by it.

Forchheimer⁴ says:—"For the present the observation holds good that in all those cases in which there exists an extensive streptococcic infection we are more liable to have nephritis than in those in which the scarlet fever is alone operative."

Streptococci have, in fact, been found in the kidney in scarlet fever by Raskin, Guinon, Babes, and Gordon. Out of 10 fatal cases the last-mentioned investigator found streptococci in the kidneys of 6, giving pure cultures. In one, two cultures of *Staphylococcus aureus* were present, and in another a few streptococci could be demonstrated *in situ*.

These facts, considered along with the frequent streptococcic infection of the fauces, lead to the supposition that these organisms enter the lymph stream through the tonsils and other adenoid tissues in the pharynx, infect the glands in the submaxillary and cervical regions, causing the severe adenitis so often seen, and thence are carried to the blood stream, by which they reach the kidneys.

For this reason the adenitis of convalescence from scarlet fever must be looked upon as a danger signal, and a line of treatment must be followed which will assist the kidneys to deal with toxic substances in the blood, while reducing the adenitis as speedily as possible.

With the former object in view the patient should be kept at rest in bed, and given regular doses of salines in order to keep the bowels open and prevent the absorption of the products of bacteria from the intestines.

The local condition is best treated by fomentations, applied at short intervals, say four-hourly, till the inflammation subsides, or, as sometimes occurs, an abscess forms. If applied early they give immediate relief, and do not increase the tendency to abscess formation, as is the case if they are left till later, when the inflammation has reached the stage of stasis and subsequent thrombosis and necrosis set in, and when the usual treatment for abscess must be carried out.

As stated above, the percentage of cases of nephritis was 3.1, and that of albuminuria 14.36.

These figures approximate to those of the Asylums Board for the past three years—namely, 5.37 and 13.01 in 1903, 4.27 and 11.78 in 1904, and 3.25 and 9.23 in 1905, which show a regular diminution in the incidence of renal troubles.

At the same time the percentage of cases of simple cervical adenitis was 6.18 in my own series, and diminished from 7.58 to 6.36 per cent. in the Board's statistics.

It will be seen that with the exception of albuminuria the percentages are below the average for the three preceding years.

This exception is of interest in regard to a statement by Owen Fowler, as most of my cases were admitted during the warmest months of the year.

According to Forchheimer,⁵ Fowler "has shown that kidney troubles are most common in the summer months, and states positively that nephritis does not seem to be produced by catching cold."

That the first part of this statement is correct is highly probable, and may be compared with that of Notter and Firth,⁶ who say that rheumatism, puerperal fever, and erysipelas, which are also of a septic nature, are most prevalent in "years of small rainfall."

With regard to the latter part of the statement, in which it is implied that cold has nothing to do with the production of nephritis in scarlet fever, my own experience points in the opposite direction; but as I have no statistics giving the incidence of nephritis with the coincident air-temperatures, I cannot disprove it at present. Still, it is quite possible that Fowler's wards were more uniformly heated and ventilated in winter than in summer, in which case there would be more likelihood of patients suffering from chills in summer than in winter.

Apart from this, although my statistics show a higher

incidence than those of London for the last three years, as regards albuminuria the percentage is low as compared with the experience of some years ago, and even fairly recently on the Continent.

For instance, Dickinson⁷ quotes the late Dr. Hillier, who found albumen in about half the cases of scarlet fever under his care at the Hospital for Sick Children, while his own experience would fix the ratio higher. And Girard,⁸ of Paris, estimates it at "more than half of his cases," though he found nephritis in only 4.55 per cent., which approximates more nearly to the London experience of the latter conditon.

As, however, the type of scarlatina itself seems to have become milder of recent years, it is not to be wondered at if the renal complications should at the same time occur with less frequency and severity.

The rarity of an appreciable laryngitis, apart from coincident diphtheria, in a disease in which pharyngitis is one of the most constant features, is worthy of note. As Trousseau⁹ has said:— "*La scarlatine n'aime pas le larynx.*" In view of this the following case is of much interest:—

An infant, of twelve months, was admitted on the ninth day of the disease with a definite history of vomiting, headache, sore throat (*sic*), and a general rash. On admission no rash was evident, but desquamation was seen on the neck. There was slight faucial injection with some muco-purulent deposit on the tonsils. Bilateral adenitis and profuse purulent nasal discharge were also present. Cultures were made from the throat and nose, but no diphtheria bacilli were found.

On the twelfth day (that is, the fourth in hospital) there was some retraction of the neck, and a fairly typical "hydrocephalic" cry; but no other signs of meningitis, all reflexes being carefully examined.

On the sixteenth day she had some stomatitis, which improved.

On the twenty-sixth day there was considerable hoarse-

ness with occasional stridor. This became more marked on the thirty-fourth, and on the thirty-fifth intubation was resorted to, as she was very cyanosed, and there was marked recession of the intercostal spaces.

No improvement occurred, and two days later tracheotomy was performed, when the larynx was seen to be acutely inflamed.

After this her condition improved. A smaller sized tracheotomy tube was inserted a week later, and finally removed on the forty-ninth day, or twelve after the operation, the patient leaving hospital on the sixty-second day, well.

As a rule, laryngitis in scarlatina is due to a coincident attack of diphtheria, which is sometimes also a sequel to the former. But in the present series there were no such cases.

Several were sent in, certified as diphtheria, and others with ulceration simulating that condition, were examined bacteriologically, but none showed the Klebs-Löffler bacillus on admission, and only one developed the disease later. The most frequent position for the membrane to be found, in my experience, is in the anterior nares, especially in young children.

Among the remaining complications rhinitis and rhinorrhoea occurred most frequently, being seen in 122 cases, or 22.18 per cent. Nearly 69 per cent. of these were in children under eight years of age.

This condition, although not of serious import to the individual, apart from the presence of nasal diphtheria, is liable to become troublesome if not properly looked after, and must be taken into consideration in deciding when a patient is free from infection and may be discharged. For there is no doubt that discharges from the nose and ears are important factors in causing the so-called "return cases" of scarlet fever.

Cameron¹⁰ has shown that "in 688 cases of secondary scarlet fever which he investigated rhinitis or nasal discharge was present in 52.3 per cent. of the infecting

cases, and otorrhœa in 8.3 per cent. after the patient's return from hospital, and Simpson found these conditions present in 76.6 and 14.4 per cent. respectively in 90 cases which he examined.

Also, out of over 4,000 cases discharged from one of the Convalescent Hospitals (Gore Farm) the percentage of "return cases" was 1.6 in cases free from discharges and 2.4 in those suffering from these conditions, and notified to the medical officers of health for supervision, showing that "return cases" are more frequent where mucous discharges are present.

The treatment of nasal discharge by simple application of zinc ointment to the anterior nares gives good results. I have tried nasal douches or syringing with boric lotion with and without saline and alkaline solutions, but found that, although the discharge becomes clear, where it has been purulent, it continues for a longer period than when the local application of ointment was alone used.

Otorrhœa occurred in 7.63 per cent. of the cases, and was treated by syringing the ears regularly with warm boric lotion, thus removing, or encouraging the escape of, septic matter, which would otherwise collect and decompose, tending to set up fresh inflammation.

Only two of these gave rise to mastoid trouble. One, as has been already mentioned died after operation. In the second antrectomy was performed, the patient leaving hospital on the one hundred and twenty-eighth day, free from discharge.

Vulvitis occurred in two, and was treated by rest and local application of zinc ointment, recovery being rapid. There were five cases of pneumonia, and the same number of bronchitis. Two of the former proved fatal, being accompanied by other complications.

Sixteen patients complained of joint pains, more or less swelling and redness being present. Salicylates gave relief in several, and I have found aceto-salicylic acid of use where the former have failed.

Endocarditis was present in seven, and pericarditis in one—the treatment adopted being that usually followed in these conditions.

Stomatitis was seen in four, being accompanied by ulceration of the gums and buccal mucous membrane. So far as my short experience of this condition goes, it confirms the words of Burney Yeo,¹¹ who says that “potassium chlorate appears to exert almost a specific influence over this disease.” Given internally up to twenty grains four-hourly for two or three days it cuts short the duration of a complication which otherwise tends to spread and may even cause necrosis of the jaw and loss of teeth.

Six cases were admitted shortly after suffering from surgical diseases or undergoing operations. One had a crural abscess. Another had his hip joint scraped for morbus coxæ two days before admission. The third, a girl of fourteen, was admitted with a psoas abscess and tuberculosis of one knee-joint, and had had a colotomy performed six weeks before the onset of scarlet fever. The fourth had a recent burn on his hand.

A girl of three and a half had been operated on for empyema, and the last had undergone appendicectomy six days before developing scarlatina. All had mild attacks, and recovered without further complications, and all cases of a similar nature that I have seen since compiling the statistics for this paper have had but slight attacks. There have been no relapses amongst them, and there has been no reason to suppose that any misdiagnosis has been made.

CONCLUSIONS.

1. Scarlatinal albuminuria may be transient or permanent, but is most frequently transient.
2. Febrile albuminuria in scarlet fever is quite distinct in nature and origin from the albuminuria of convalescence.
3. Those who suffer from septic inflammation of the fauces and lymphatic glands are more likely to develop renal complications than those who do not.

4. Complete recovery from albuminuria and nephritis in scarlet fever is of frequent occurrence under suitable treatment and in favourable surroundings.

5. Scarlatinal infection, occurring as a complication of surgical lesions, appears to be often of a mild character.

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LITERARY NOTE.

At the present time, when the terrible wastage of infant life is attracting so much attention, a volume which the Caxton Publishing Company announce for immediate issue will appear very opportunely. The work is by Professor Budin, the famous obstetrician of Paris University, and describes, in elaborate detail, with numerous coloured graphs, a method of treatment which has already attained marvellous results in France in reducing infant mortality. Every statement in the work is based on actual personal experience. The work is translated by Dr. W. J. Maloney, and Sir A. R. Simpson contributes an introduction.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Real Triumph of Japan ; the Conquest of the Silent Foe.

By LOUIS LIVINGSTON SEAMAN, M.D., LL.D. ; late Surgeon-Major, U. S. V. E. ; Author of "From Tokio through Manchuria with the Japanese," "The Social Waste of a Great City," "Native Troops for our Colonial Possessions," &c., &c. London : Sidney Appleton. 1906. 8vo. Pp. 291.

WEIRDLY mysterious has been the existence of the beautiful land of Dai Nippon in the past ages, and its recent awaking—almost explosive in its sudden unexpectedness and its far-reaching consequences—is worthily in keeping with the interesting pre-existence of the phenomenal Island Empire of the Far East. It is thoroughly suggestive of the ever-wobbling territory of incessant earthquake, of that detached supplement to the great Asiatic Continent, every aspect of whose approximately crescentic outline and gorgeous scenic superficies suggests genesis and development from the resultant effects of volcanic movement and the incessant action of the corroding waves.

The newly-aroused infant of the international family of humanity now looms so largely over the journalistic horizon that the present rising generation of Western readers require special study of the subject to enable them to grasp the inspiration of the lines which well represented the European voyager's view in the early part of the last century :—

Jealous China, strange Japan,
With bewildered thought I scan.
Ye are but Dead Seas of Man !

And Dai Nippon has well proved itself to be possessed of the joyous hopefulness and enthusiasm, as well as the freshness and vigour, of infantile and adolescent existence. (So let the Western Nations look to their laurels of science and progress and—and . . . if they wish to continue to wear

them!) Japanese army and navy have recently laid down new precedents in warfare—guaranteed by unparalleled results—which were obtained by methods and appliances that had previously been but partially tested, if at all. Half a century ago—and a good deal less, indeed—Japan was referred to as a “hermit nation.” And now!!! A fact of which every member of our profession throughout the civilised world can well afford to be proud furnishes the inspiring text (and title) of the volume now before us, in which Dr. Seaman clearly shows that the “real”—the greatest—triumph of Japan in the recent colossal struggle with a power at first sight apparently as unequal as that of David against Goliath was in the immeasurable superiority of the weapons with which this people of smaller stature opposed the entrance of disease, and death from wounds or injuries received in battle or elsewhere. The superior standing of Japanese pathologists and sanitarians was known, of course, to all well-informed readers before the late war with Russia; but the unprecedented facility with which they applied theory to practice, and perfected the requisite co-ordination of movement along their almost indefinitely expanded line of offence, constitutes in itself the greatest and most encouraging triumph whose record has hitherto embellished the annals of medicine and surgery.

Early Japanese tradition gives to the people of the Mikado's Empire a very peculiar—indeed, we believe, unique—association with, and claim upon the attention of, the members of the profession of the healing art. It is recorded by the famous Jesuit traveller, Père de Charlevoix. This account refers the very origin of the people of Dai Nippon to the emigration thither of a Chinese colony—under circumstances decidedly peculiar, if not absolutely unique. Sinosikwo ascended the throne of the Celestial Empire in the year 246 B.C., and plunged at once into a headlong career of cruelty and ruthless and bloody tyranny. He also appeared to enjoy it; for he betrayed every anxiety to be able to preserve for a period as prolonged as possible all the powers and privileges of his personal individuality, and the position with whose perquisites it had been so fortunately endowed. Accordingly, he despatched trusted messengers and explorers into all the countries

with which he held any communication, or of the whereabouts of which he could obtain any knowledge, for the purpose of endeavouring to obtain some specific agent by which the duration of human life could be prolonged. One of the Emperor's medical attendants then lived in continuous dread of the enunciation of a sudden sentence of death from the lips of his imperial patient. He, accordingly, had the political prudence to inform the latter that he had ascertained—on report of reliable quality—that such an agent existed in the juices of a plant which grew only in the islands which now form the Japanese Empire. The plant in question was also represented as one of structure so delicate, and nature so sensitive, that if not plucked by hands of absolute purity and with multiplex technical precautions, it would inevitably lose all its mysterious virtues during the period of transit from Japan to the Court of China. On such grounds it was suggested by the anxious physician that 300 young men and the same number of girls, all of perfect physical health and spotless moral purity, should be selected to proceed to Japan for the purpose of procuring a sufficient supply of that priceless vegetable. And the suggestion was promptly accepted—no time was wasted, and no trouble was spared in carrying out the requisite preliminaries. In order to make assurance doubly sure, to neglect no human precaution by which an approximation to certain results can be obtained by sublunar agency, the medical courtier patriotically volunteered to conduct the expedition himself, and his offer was graciously accepted!! That expedition started, with the minimum of preparatory delay, on its personally (and medically) conducted tour in the Japanese Islands. And the Chinese Court, and the borders and superficies of the Chinese Empire, saw the leader and members of that expedition no more!!! And it is almost unnecessary to add that the previously unoccupied islands of Dai Nippon became populated with phenomenal rapidity, and with a race whose individual members were far more fresh and vigorous of physical frame, and luminous of intellect, than the average inhabitants of the lands of the Celestial Empire. The medical leader of the expedition, of course, created himself king of the country, and soon had a

magnificent palace erected for his residence, to which he gave the name of Kanjoku (*grande maison, semblable aux cieux*). We are further informed that the Japanese pointed out to visitors the spot on which the medical founder of their empire landed, and also showed the ruins of a temple which was erected in his honour.

The earliest authentic account of Japanese medicine and surgery which reached our western borders was that furnished by the famous Dr. Kaempfer. It also remained for even a couple of centuries almost the sole considerable one, on account of the hermetic closure of its doors on white-faced intruders by the officials of the Empire of the Mikado.

The cast-iron conservatism of their Oriental methods and customs preserved, of course, the primitive forms down to the date of the recent awakening. And the prominence now occupied by Japan in the present, and probable future, field of human power and progress—physical and intellectual—will, we conceive, make the subject sufficiently interesting to our readers, to give a favourable opportunity of contrasting some of the characteristic features of the old practice with that of the present generation. In the department of medicine their activities were fairly considerable, and they displayed a good deal of variation as to means and method; but in that of surgery their range was exceedingly limited, indeed. Their surgical armamentarium, like that of their Chinese neighbours, consisted almost solely—if not wholly—of the *acupuncture* needle and the *cautery*. The needle was made to penetrate the skin, at certain prescribed points, in the treatment of the most various diseases—from cholera, dysentery, and the “endemic colic” of the country, down to the most trivial local rheumatic and neuralgic pains. A candidate for a surgical diploma was placed, needle in hand, before a bronze mannikin, in the surface of which the recognised therapeutic points were indicated by small holes. The mannikin was draped in paper, through which the surgical candidate was required to penetrate the requisite unseen orifices when a certain disease was named. Accuracy of aim was, of course, an infallible testimony of the skill and attainments of the future practitioner.

The cautery was applied in the form of the *moxa*. For the gratification of the curious, we venture to think Kaempfer's account worthy of the reader's cursory perusal: "Moxa is a soft down or flaxy substance, of a grey or ash-colour, very apt to take fire, though it burns but slowly, and with a moderate heat, there being scarce any sparkling observed, till it is quite consumed into ashes. It is made of the dry leaves of the *Artemisia vulgaris latifolia*, or common mugwort with broad leaves, which are plucked off when the plant is very young and tender, and hung out in the open air for a long while. The Japanese say that it is not at all times equally proper to gather the mugwort for making the *Moxa*, but that it must be done only on such days, which have been by their astrologers singled out for this purpose, and have the advantage of a particular benign influence of the Heavens and Stars, whereby the virtues of this plant are greatly increased. These days are the first five days of the Japanese month, call'd Gonguatzgonitz by the natives, which according to the Gregorian almanack answer to the beginning of June, and sometimes, but seldom, to the latter end of May. For, as I have elsewhere observed, the Japanese begin their year with the new-moon, which is next to the spring equinox. The Plant must be gathered only in the morning, before it loses the dew, which fell in the night, and then hung out in the air on the West side of the house till it is full dry. It is afterwards laid up in the garret, and it must be observed, that the older it is, the tenderer and better down may be obtained from it, for which reason some keep it ten years. The preparation of the *Moxa* is a matter of no great art or difficulty. In the first place the leaves are beaten with a pestle into the form of a coarse flax, and then rubb'd with both hands, till they lose the coarser fibres, and harder membranous parts; which being done, there remains only that soft, delicate, homogeneous, and so much commended down, which nature bestow'd on the young Mugwort preferably to other plants."

The final stages of the preparation of the *moxa*, and its specific application to the cutaneous surface of the human sufferer, are described as follows:—

"A small quantity of *Moxa* is rolled or twisted, between

the thumb and fore-finger, into the form of a Cone, almost an inch high, and something less broad at the bottom. This Cone is put on the part which is to be burnt. Some wet the bottom a little with spittle to make it stick to the skin. This done, they put fire to the top with a thin burning splinter, which the Japanese call *Sinki*. The Cone being consumed, which is done in a very short time, another, if needful, is applied to the same part, and burnt as before. This is repeated as often as the Patient desires, or the Operator directs, or the case seems to require. The Surgeons, whose business it is to perform this operation, are call'd by the Japanese *Tinsasi*, that is, feeling people, or, according to the literal sense of the word, *people that penetrate with the touch*, because before the operation, they always feel about, and examine the part, which the Caustick is to be applied to. The little rods, or candles, which they make use of to put fire to the Caustick are the very same which the Heathen Priests burn in the temples before their idols. They are made of the slimy bark of the *Taab* tree, as they call it, or *Taabnoki*, that is, *Laurus Japonica*, Sylvester's wild Japanese bay-tree, one of the tallest and largest trees growing in the Country."

All parts of the skin of the Japanese invalid were made acquainted with the effects of the application of this agent—when the subjacent structures had been suspected to be under the influence of morbid change.

"They burn indifferently, and without regard, old and young, rich and poor, male and female, only women big with child are spared, if they have not been burnt before. The intent of burning with the *Moxa* is either to prevent or to cure diseases. But it is more particularly recommended by their Physicians as a preventive medicine, for which reason they advise the healthy, more than sick people, to make use of it. This practice of theirs they ground upon the following principle, that by the very same virtue, whereby it dispells and cures present distempers, it must of necessity destroy the seeds of those to come, and by this means prevent them. Hence it is that in these extremities of the East all persons who have any regard for their health, cause themselves to be burnt once every six months. This custom is so thoroughly

and religiously observed in Japan, that even those unhappy persons, who are condemn'd to perpetual imprisonment, are not deprived of this benefit, but are taken out of their dungeons once in six months, in order to be burnt with the *Moxa*."

The operator always took care to avoid the position of any appreciable superficial blood-vessel. Sexual intercourse was forbidden for a period of three days before the application of the moxa, and seven days after. Meteorological conditions were studiously estimated. "You must entirely abstain from burning in rainy, wet, or too hot weather, and on a cold day." And as might have been anticipated, the influence of the celestial powers was ever present to the mind of the operator :

"*Nidsin* (the spirit of the Stars) lodges in the spring about the ninth vertebra, in the summer about the fifth vertebra, and in winter about the fourteenth, and near both hips : For this reason care must be taken not to burn any of these places, at the times above-mentioned."

And the reader will perhaps be pleased to know some characteristic specimen applications :

"Those persons who are subject to colds, bleeding at the nose, or swimming of the head, will find great benefit, if they cause from fifty to an hundred cones to be burnt (successively) in the place called Tuumon (Tuumon is the region of the *Os sacrum*.)"

"In claps you must burn in the middle of the place called Jokomon (*Jokomon* is above the privities in the middle between them and the navel)."

The Japanese medical practitioners of the old *régime* were also druggists and botanists. Each was accompanied in his rounds by an attendant, who carried a small chest in which were twelve drawers. Each of the latter was furnished with one hundred and forty-four compartments, individually consecrated to the reception of special herbs and other drugs. After examination of a patient the medical adviser selected the requisite remedies from this reservoir, and prepared and mingled them *secundum artem*. Their science of the pulse was the most complex known to medical history—except, perhaps, that of their Chinese neighbours. A complete

examination of the pulse required at least half an hour. At the close of this scrutiny the doctor professed to have ascertained all the causes and existing conditions of the malady and its bearer. As a rule they used but few remedies in a single case. They never had recourse to venesection. They gave a patient none of the ordinary cooked forms of diet—on the ground that the stomach in disease was never able to digest anything suitable to the healthy state. Otherwise, they gave the sick, as far as possible, what they wished for; relying on the view that nature was always the safest adviser, and never demanded what was likely to be hurtful to the constitution. The great object of their practice was the *prevention* of disease, and they believed that nothing contributed more effectively to this result than the frequent use of the bath.

There were three varieties of *small-pox* recognised in Japanese practice. The first corresponded to the disease known in Europe by this name; the second would seem to have been identical with our measles; the third was an endemic disease of the country, characterised by an eruption of “watery pustules,” and which Père Charlevoix was disposed to attribute to the excessive use of cold drinks by the Japanese. None of the varieties would, however, appear to have been regarded as a very fatal disease. Kaempfer tells us that the only treatment considered necessary was the enveloping of the patient in cloths of a scarlet colour. He also states that when one of the family of the Emperor was attacked by small-pox, not only was his bed and the walls of the bed-chamber curtained with red, but all the attendants were obliged to wear garments of the same hue. Such practice, which he found to be declared of untold antiquity, constitute an interesting anticipation, indeed, of the experimental procedure of the English John of Gaddesden, and its recent resuscitation, on the most advanced scientific grounds, by some European and American physicians! What scientific physician, even in the opening years of this ultra-scientific twentieth century, can be absolutely sure that he has achieved a really *new* discovery?

Look upon this picture, and on this. Let the reader who

has taken an interest in the attempt which we have made in the above paragraphs to give him some clearly defined ideas on the subject of Japanese therapeutics, from pre-Christian times down to forty years ago, or thereabouts, now turn to the attractive pages of Dr. Seaman's brilliantly written and well illustrated volume, and we believe that he will arise from its perusal with a higher opinion of human nature, and with brighter hopes for its future development and evolution. The nation which has undergone such intellectual transfiguration during a period of a little over a quarter of a century offers to its contemporaries and to posterity the strongest conceivable arguments in favour of the soundness of the faith which they place in the powers of humanity, and the brilliancy of their prospective pictures of its future conquests, intellectual and physical, over the hitherto unattempted things and unexplored regions of the densely obscure and apparently impenetrable. Dr. Seaman's book is most worthily dedicated :—

“To the Medical and Sanitary Officers of the Japanese Army, who have proved that the normal condition of the soldier is health, and that those who die in war should fall in the firing line, and not by the wayside from disease; to the heroic dead of that Army, who have gladly given their lives for the honour and integrity of their beloved country; to that vast army of American Dead, whose lives in war have been needlessly sacrificed through preventable diseases, ignorance, and incompetency; and to our Lawmakers, through whom the necessary reforms can come that will prevent the repetition of such sacrifice, these lines are dedicated.”

Dr. Seaman conveys a noble and patriotic lesson and example to his professional brethren and political fellow-countrymen and contemporaries throughout the civilised world; and to their best attention we cordially recommend the perusal of his inspiring pages.

La Neuronophagie. Par RÉNÉ SAND. Bruxelles. 1906.
DR. SAND is to be congratulated on the appearance of this little book, which aims at gathering together all the con-

firmed and accepted facts concerning the destruction of nerve cells by phagocytosis, and also the penetration of cellular elements in general into nerve cells. In addition to compiling and briefly analysing a very extensive bibliography, the author records the results of his own fairly extensive investigations into the condition of the nerve cells in cases of infectious disease, and gives a most elaborate account of the technique that he has adopted. Some of his conclusions are interesting—one of the most important being that “diseases generally, according to their virulence and to the resistance of the subject, produce in the nervous tissues sclerosis, degeneration, or inflammation.” Infectious diseases, as a rule, he says, produce some degree of inflammation, though neuronophagia is much rarer than was formerly believed. Some account is given of the pathology of the nerve cell, apart from inflammatory changes, and the difficulties encountered in histological analysis of sections are fully dealt with. The book is interesting to the general reader, and should prove useful to the specialist in nervous pathology.

A Short Practice of Medicine. By ROBERT A. FLEMING, F.R.C.P.E.; Assistant Physician, Royal Infirmary, Edinburgh. London: J. & A. Churchill. 1906.

In publishing this volume the author offers in his preface, as apology, the statement that while there are many excellent text-books dealing with the Practice of Medicine there are few small-sized manuals on the subject. He has, therefore, compiled the present work to serve as a guide to the student as to what is necessary and what is unnecessary for the all-important examinations which lie before him. We do not like that word “all-important”; it seems to express an opinion that what the student wants is to pass his examinations, rather than to know his work; the opinion may be correct, but the desire should not be encouraged, and consequently we cannot approve altogether this style of book. It is significant of the times, however, for we notice that during the last few

years there has been a distinct increase in the number of epitomes and short medical manuals issuing from the press, and therefore, it may be assumed, an increased demand for them. One would think, indeed, that every student would be able to read over one of the larger textbooks on medicine during the four years that is usually spent in attending hospital, and would derive from it in an interesting and easy manner the information requisite for his finals, and also a wider understanding of his subject than can be gained from a mere notebook. That he is not able to do so is undoubtedly a misfortune, and raises the question as to whether too much time is not being spent on the preliminary sciences. When one compares the size of the "Anatomy" possessed by a student with his "Medical Epitome," often only purchased in the fifth year, the question is, to our mind, answered, and the sooner that answer is appreciated by the various teaching bodies the better it will be for the students, and for the public whose illnesses the quondam student is about to treat. After these few reflections on a type of book we may add that Dr. Fleming's work is good of its kind. As a notebook it is complete, its diction is clear, and its information is correct.

The Calcutta Medical Journal. (The Journal of the Calcutta Medical Club.) Vol. I. No. 1. July, 1906. Calcutta: The Calcutta Club, 72 Harrison Road.

WE gladly welcome into the world of medical journalism this latest intellectual birth of our contemporary labourers in the remote domains of the Far East. It starts well, with excellent paper and type and most convenient size. The foremost article deals—most appropriately, at this season—with "Ranchi—A Health Resort," by N. Mitra, M.A., M.B. This is followed by "Trypanosomida," by Gopalchandra Chatterjee, M.B.—a subject which is more than likely to occupy a large share of professional attention for some years to come; "Oxalate of Lime in Pregnancy," by Indumadhab Mallick, M.A., L.M.S.; "A large Intra-Cervical Fibroid,"

by Kedarnath Das, M.D.; "A case of Cerebral Tumor with no Symptoms," by Satyasaran Chackrabarty, M.B.; and "Angioma of the Liver (not diagnosticated during life)," by M. Mitra, M.D., F.R.C.S. Edin. Next in order come "Transactions of the Calcutta Medical Club," which fortunately includes an account of Major Leonard Rogers' Address on "Fevers of Calcutta: their Clinical and Microscopical Differentiation;" and of the discussions of some other items. The curious in matters malarial should come and see. The inevitable "Review" and "Current Medical Literature" constitute the closing items of the primary stage of the genesis of our infantile contemporary. May its evolutionary development be of phenomenal health and vigour!

YEAR BOOKS FOR 1907.

1. *An Almanack for the Year of Our Lord 1907.* By JOSEPH WHITAKER, F.S.A. London. 8vo. Pp. 887.
2. *Whitaker's Peerage, Baronetage, Knightage, and Companionage for the Year 1907.* London. 8vo. Pp. 737.

THESE most useful annual publications are more than ever welcome on this occasion, because of the political changes which occurred in December, 1905, and which put astray all the year-books for 1906.

1. FOR the thirty-ninth time "Whitaker's Almanack" makes its annual appearance. In his preface the Editor tells us that amongst the subjects introduced in this issue are short treatises on Army Reform (by Lt.-Colonel E. Gunter, at pages 649-651), the Growth of Travelling Facilities in London (by Mr. Herbert H. Bassett, at pages 654 and 655). These sections are followed by a longer article on the British Military System by P. R. Coles (pages 656-665).

We are gratified to observe that Ireland figures much more largely in the list of British Holiday and Health Resorts than it did in previous issues of this Almanack.

Last year only Greystones and Portrush found a place among Irish health resorts. In the 1907 edition we meet with Bangor, Co. Down, Belfast, Bray, Cork, Donaghadee, Dublin, Galway, Greystones, Killarney, Kingstown, Portrush, Waterford; but why are Newcastle (Co. Down), Howth, Malahide, Queenstown, Tramore, and Wicklow omitted? We are sure the Editor merely needs to have his attention drawn to this point and that he will take care to supply the additional information.

Naturally, as Irish Journalists, we turn to the statements in the Almanack which refer to Ireland. They are generally accurate, but we observed the following errors—in the Lord Lieutenant's Household (page 348), Sir Arthur Chance is described as President of the Royal College of Surgeons in Ireland—a post which he vacated in favour of Mr. H. R. Swanzy last June. Mr. Swanzy's name is correctly given as President at page 351, but in the next paragraph on this page the Law Officers are stated to be the Right Hon. John Atkinson, K.C., M.P., who was created a Law Lord in December, 1905, and James Henry Mussen Campbell, K.C., M.P., who succeeded Lord Atkinson as Attorney-General, but was in turn succeeded by Mr. Richard Cherry after a brief tenure of office, on the accession to power of the Liberal Party.

It is not correct to say (page 707) that "Professor C. J. Joly died, after a long illness, on January 4." The much lamented Royal Astronomer of Ireland succumbed to an attack of typhoid fever.

These slips, at the same time, hardly detract from the value of this clever Almanack, which is a very mine of useful information on almost every subject of daily interest.

2. "WHITAKER'S PEERAGE" is interesting reading, especially as it includes particulars relating to the twenty-eight new creations of peerages for which the past year is notable. The Editor points out that the Post Office has abolished the use of the form "R.S.O." (Rail-

way Sub-Office), merging it in the simpler "S.O.," which is employed throughout the work before us.

The "Peerage" is a companion volume to the Almanack. It contains an alphabetical directory of titled persons, with a comprehensive introduction and an index to country seats. It is a wonderfully inexpensive work, costing only three shillings and sixpence net.

Lectures on Midwifery for Midwives. By A. B. CALDER, M.B., M.R.C.S.; Lecturer on Midwifery to London County Council; St. Mary's Midwifery Training School, Fulham; St. Clement's Maternity Home, Fulham. Illustrated. London: Baillière, Tindall & Cox. 1906. Pp. 274.

DR. CALDER has published, in a most interesting volume, the lectures which he is in the habit of delivering to his pupils. The lectures number some fifteen in all, and cover practically the entire subject of midwifery, so far as nurses and midwives are concerned. They are written in a most graphic and interesting manner—one which cannot fail to be of use in impressing their teachings on the minds of their readers. If Dr. Calder lectures as he writes, we can quite believe that he is a most popular lecturer, and that "his pupils have requested him to publish his lectures."

We note that—in strong contrast to a recently-published "Midwifery for Nurses"—Dr. Calder gratefully acknowledges his indebtedness to the writings of others, particularly Herman, Galabin, Jellett and Jewitt.

The only statement which we have noticed to which we can actively object is one which says that, in placenta prævia, "when the doctor arrives he will treat this kind of bleeding as he treated the bleeding of inevitable abortion—viz., he will empty the uterus in order to have it firmly contracted and retracted." If Dr. Calder will allow us to suggest, the wise doctor will take such steps as will induce the uterus to empty itself—a very different

procedure. It is only in the most exceptional cases that he is called on to accomplish the emptying himself.

We strongly recommend Dr. Calder's book to pupils and practising midwives and monthly nurses, not in the place of, but as an adjunct to, a systematic manual. We hope, however, that in a future edition he may see his way to introduce a fresh series of illustrations, as the present are very poor.

Lectures on Neurasthenia. By THOMAS D. SAVILL, M.D.;
Physician to the West-End Hospital for Diseases of the
Nervous System. Third Edition. London: Henry J.
Glaisher. 1906.

THE volume now before us is considerably enlarged as compared with the first edition, which made its appearance about six years ago, and which consisted of a series of post-graduate lectures delivered by the author at different institutions. Its general characters are, however, retained, and while some of the sections have been considerably amplified, and a new chapter on ætiology and prognosis has been added, the leaving out of unnecessary material has enabled the book to be still kept within a moderately-sized compass, while still being printed on the unusually thick paper which characterised the earlier editions. The subject with which it deals has assumed so great an importance both actually and also out of proportion to its value, in the minds of the profession generally and of the public, that the volume has hitherto enjoyed a pretty wide popularity, and has been regarded as a convenient and critical compend of all that must be known on neurasthenia. The present edition, we feel sure, will maintain and add to that popularity, especially in these days when, instead of failing to recognise neurasthenia, it has become the fashion to recognise it when it does not exist, and to fall back upon its high-sounding name as upon a veil which may conceal ignorance and at the same time keep fast the dust which occasionally settles even in professional eyes. In justice

to the book we must, however, immediately say that a careful perusal of it would be the very best antidote for the tendency to diagnosticate everything as being due to lowered nerve force, though, naturally enough, after reading it one may be tempted at first to think that there are more neurasthenics under heaven than ever the reader dreamt of. The writer, however, defines his limits carefully and keeps within his definition, and when we reflect that in every chronic disease the nervous system must be more or less profoundly altered, in common with all other systems of the body, and must, moreover, react injuriously on the rest of the body, no one will think of cavilling at the number of ætiological conditions recognised, but possibly even the reverse. We are glad to see that varieties of neurasthenia, such as gastric, cardiac, and the like, are not recognised, but that the essential unity of the disease is insisted on, although its manifestations are so numerous, and that at the same time the cases are divided into four groups determined by the pathological factor at work. The table at page 48, which sums up the distinguishing points of neurasthenia, hysteria, and hypochondriasis, is most useful, and if once thoroughly grasped should enable the differences between these often confounded diseases to be at once understood. We may conclude by heartily recommending the book to all medical practitioners.

The Schott Methods of the Treatment of Chronic Diseases of the Heart. By W. BEZLEY THORNE, M.D., M.R.C.P. Fifth Edition. London: J. & A. Churchill. 1906.

It is only a little over ten years since the first appearance of this book, and the fact that it has run through four editions and reached a fifth in the interval speaks well for its general popularity. The book is indeed now so widely known that it is unnecessary to criticise it or review it at any length. It has been an important factor in making known the details of the Nauheim treatment in this country, and thus of bringing within

the reach of many patients a means of cure of which otherwise their medical attendants might have been in ignorance. The present edition is on the same lines as the preceding ones, and commences with an account of Nauheim itself and its baths; then comes a short account of the movements and a more detailed analysis of the physiological effects produced by the treatment, followed by a most practical chapter on the conditions to which the methods are applicable. For those who wish to carry out the treatment at home the method of preparing baths given in Chapter II. and the figures illustrative of the exercises in Chapter IX. will be most useful. The volume concludes with an account of some clinical cases, accompanied by tracings of the areas of cardiac dulness in patients before, during, and after treatment. It is not our intention to criticise either these or the method, as both have been subjected to discussion *ad nauseum*. We recommend the book to all practitioners who wish to see the case for the Schott treatment stated.

Thirty-fourth Annual Report of the Local Government Board, 1904-05. Supplement containing the Report of the Medical Officer for 1904-05. London: Wyman & Sons. 1906. 8vo. Pp. xxxviii + 428.

As usual, Mr. W. H. Power's Report "to the Right Honourable John Burns, M.P., President of the Local Government Board," is full of interesting matter. The Medical Officer first alludes to a translation, by Dr. Theodore Thomson, one of the Medical Inspectors of the Board, of the full text of the International Sanitary Convention of 1903, drafted by the Conference which assembled in Paris in that year. The Convention still awaits ratification by the several Signatory Powers. Pending this event, a Bill, empowering the Board to make Regulations authorising measures to be taken, in discharge of international obligations, for the prevention of conveyance of infection, was laid before Parliament, and

this Bill in due course became law under the title of the Public Health Act, 1904. Under this and other Acts, Regulations embodying the principles of the 1903 Convention have been framed by the Board, and will be issued on the ratification of that Convention.

Early in 1904 a Conference of Representatives of the British West Indian Colonies was held at Barbados on the subject of "Quarantine" Regulations. The Convention and Regulations framed at this Conference have since been adopted by legislation in all the Colonies which took part in it. The text of the new regulations is given in Appendix A., No. 2. They incorporate measures, carefully considered in relation with local conditions, very much in advance of those which they replace.

Having dealt with other "supra-departmental" business, the Medical Officer proceeds to review the general administrative business of the Medical Department during the year. Small-pox, small-pox hospitals, and vaccination occupied much of the time of the Board and its Inspectors. As to the second matter, the present volume contains two reports (Appendix A., Nos. 9 and 10) of inquiries specially directed to the question of "hospital influence" in the diffusion of small-pox. The first of these reports relates to the Sheriff Hill Hospital of the Borough of Gateshead, the use of which for small-pox was attended by exceptional prevalence of the disease in the vicinity. The Inspector, who investigated the Gateshead outbreak, Dr. Buchanan, concludes that the isolation of small-pox cases in Sheriff Hill Hospital was attended by a conspicuous prevalence of the disease in the inhabited areas in its vicinity, both in the borough of Gateshead and in Felling. In his judgment the use of this hospital was responsible directly or indirectly for a material portion of the epidemic which occurred during 1903-4 in these two administrative districts. He had no hesitation, therefore, in recommending that the Sheriff Hill Hospital should no longer be used for the isolation of small-pox.

The second report refers to the hospitals used for the isolation of small-pox in Liverpool during an outbreak which lasted from December, 1901, to November, 1903. This epidemic was the subject of an inquiry by Dr. Reece, who writes the report. As we have already alluded to a conflict of opinion between Dr. E. W. Hope, Medical Officer of Health for Liverpool, and Dr. Reece, as to the "hospital influence" in relation to this epidemic, it may be well to quote Mr. Power's judicial pronouncement on the question:—

"Since this report was issued some question has been raised locally, not as to the facts recorded by Dr. Reece, but as to his conclusion that the excessive incidence of small-pox on locality, corresponding in point of time to the hospital operations, was causally related to the use of these hospitals for the reception of acute small-pox cases. It has been urged by the Medical Officer of Health of Liverpool, in a commentary on Dr. Reece's report, that the various circumstances of local distribution to which Dr. Reece drew attention and illustrated diagrammatically may have been matters of mere chance or accident. But it must be admitted that the odds against a series of coincidences which would produce the results in question are very great; and the proposition is rendered more difficult of acceptance when account is taken of the parallel between the behaviour of small-pox in the neighbourhood of each of the three Liverpool hospitals and that which has so frequently occurred in connection with other hospitals in other epidemics—notably in London, at the time when small-pox cases were isolated in hospitals within the metropolis, with results recorded in reports made by myself to the board between 1880 and 1886. Among quite recent instances in which similar 'small-pox hospital influence' has been reported are the epidemics in Orsett and Gateshead, above referred to; the epidemics in Glasgow between 1900 and 1904; and that in Philadelphia in 1903-1904.

"I have above drawn attention to the circumstance that in the neighbourhood alike of the Sheriff Hill Hos-

pital and of the Liverpool hospitals there was evidence of graduation in intensity of small-pox incidence, the proportion of dwellings invaded by small-pox becoming smaller as the distance from the hospital increased. Both inquiries thus indicated the existence of the characteristic distribution which has led to inference that small-pox contagion may on occasion be carried by atmospheric convection currents from the hospital to places in its neighbourhood.

"In his Liverpool inquiry, Dr. Reece was concerned with the facts rather than with their explanation, but it appears probable, in view of the efficient organisation of the Liverpool Public Health Department and of the Liverpool hospitals, and of the thoroughness of the efforts made to cope with the epidemic, that hospital communications and traffic had little, if any, share in the excessive incidence of small-pox in the neighbourhood of the several hospitals.

"Dr. Buchanan came to a similar conclusion in regard to Sheriff Hill Hospital. He notes that small-pox was exceptionally persistent in the village of Windy Nook, within half a mile of this hospital. This village is in the Urban District of Felling, not in Gateshead, and cases of small-pox occurring in Windy Nook were isolated in the Felling Hospital, more than two miles from Sheriff Hill. Thus the persistence of small-pox in Windy Nook could not be connected with traffic of ambulances between Sheriff Hill Hospital and Windy Nook, or with visits of Windy Nook people to that hospital. Communications of other kinds between persons living in Windy Nook and the hospital at Sheriff Hill were also, practically speaking, non-existent throughout the epidemic." (Pages xxii and xxiii).

The remaining topics discussed in the Medical Officer's interesting report are Vaccination and Public Vaccination, Plague, Cholera, and certain auxiliary scientific investigations by Dr. Klein on the different methods by which rats may become plague-infected, by Dr. Houston on the biology of excrement and water, by Dr. Sidney

Martin on albumoses and other chemical products obtained by him as a result of growing *B. enteritidis sporogenes* on various media, and on certain inter-relations of *agglutinins*. In an Appendix (B., No. 5) Dr. Mervyn Gordon continues his study of air-borne infection, and in Appendix C. Dr. Alan Green reports on chloroformed calf lymph to December 31, 1904—the date on which he retired from the service of the Local Government Board.

We have written enough to show what a mine of information and research is contained in this volume.

Polypus of the Nose. By EUGENE S. YONGE, M.D. (Edin.).
London and Manchester: Sherratt & Hughes. 1906.

A MONOGRAPH such as we have under consideration is of great use in these busy times. First, because it collects in one cover all the best and latest information on the subject; and, secondly, because one may assume that a man who takes the trouble to write a monograph really has studied the subject thoroughly.

Both these considerations are fulfilled in the book before us. Commencing with the history of the disease, the author goes back to the time of the ancients, and brings it down right up to date, giving the various theories that have been brought forward, and showing their good and weak points.

As is well known, the earliest pathology of polypi was that they were myxomatous growths, but that has practically now been disproved, and they may be taken to be the “products of inflammation,” whether that inflammation originate in the mucous membrane, periosteum, or bone.

He defines nasal polypi as “new formations composed mainly of a loose network of fibrous tissue, and commonly arising from some portion of the mucous membrane covering the ethmoidal region of the nose.”

On page 22 he gives a list of theories that are worth consideration as follows:—

- (1) That polypi are true tumours.

- (2) That polypi are peculiarly modified granulations.
- (3) That polypi are almost invariably a symptom of suppuration in the accessory sinuses of the nose.
- (4) That polypi are merely a symptom of disease of the ethmoid bone.
- (5) That polypi are œdematous hypertrophies of the nasal mucous membrane, the indirect result of certain mechanical changes in the mucous glands.

And he then goes fully into each of these, and shows their fallacies, and practically proves that all the various classes of polypi may be included under the head of *œdematous hypertrophies*, whether the initial cause be a suppuration, a disease of the bone, or merely inflammation of the mucous glands.

He describes, further on, the histology, mode of origin, &c., and also several experiments which he carried out on animals, with a view of proving his theory.

Then he shows the ordinary methods of operation, and points out clearly how necessary it is that the bone from which polypi grow should be removed, if a cure is to result, in all those cases where it is a question of a number and not one large polypus.

The author states that he hopes to have a further communication to make, and it will be looked for with interest by those interested in this very important subject.

Dissections Illustrated. A Graphic Handbook for Students of Human Anatomy. By C. GORDON BRODIE, F.R.C.S.; late Senior Demonstrator of Anatomy, Middlesex Hospital Medical School, Assistant Surgeon, North West London Hospital. With Plates drawn and Lithographed by Percy Highley. Second Edition, revised. London: Whittaker & Co. (No date). Quarto. Pp. iv + 142.

THIS fine "Atlas of Human Anatomy," as it may be called, includes seventy-three coloured plates and thirty-seven diagrams. In his preface Mr. Brodie tells us that the work is intended for all those who desire a graphic representation

of anatomy, but who may have found the "magnificent" plates of Professor Ellis too large to be portable, and too expensive for the majority of students to obtain. In order to get over this difficulty, the plates in the present volume, with the exception of five, instead of being life-size, are reduced by one-third, thus making a convenient and portable book. They represent special dissections, in nearly all cases done by the author himself.

The full-size plates are those which show the dissection of the interior of the skull, the pharynx from behind, the pharynx opened, and the larynx (Plates XLVIII. to LII., inclusive). In order to give a good view of the anterior wall of the abdomen, two double plates have been introduced (Plates LXI., LXII., LXIII. and LXIV.).

The dissections aim only at showing the ordinary details and not unnecessary minutiae, and the various structures have been kept as closely as possible in their normal relations to each other. The diagrams are mostly based on original work done by Mr. Brodie during his demonstratorship at the Middlesex Hospital Medical School.

Mr. Percy Highley is evidently an artist of considerable ability. He has drawn from nature with rare skill, and has prepared the lithographic plates in a creditable manner. They do not, it is true, compare for finish and beauty with the "Atlas of Human Anatomy" published some two years ago by Professor Spalteholz of the University of Leipzig, but that they will serve a useful purpose we have no doubt.

The lettering of the Plates is well arranged. Muscles and their appendages are indicated by capital letters, vessels by small italics, and nerves by Arabic numerals. The descriptive letterpress errs, if at all, on the side of brevity and conciseness.

We can cordially recommend this book as a valuable aid to the student in the dissecting-room or in his study.

PART III.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. MAGEE FINNY, M.D., F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF MEDICINE.

President—J. M. REDMOND, Pres. R.C.P.I.
Sectional Secretary—F. C. PURSER, M.D.

Friday, November 9, 1906.

The PRESIDENT in the Chair.

So-called Functional Cardiac Murmurs.

DR. TRAVERS SMITH read a paper on the above, dealing especially with the pulmonary systolic functional murmur, or the common "hæmic" murmur. He reviewed the current theories to explain this murmur, and showed how they could all be refuted on ætiological, clinical, or autopsical evidence. It was urged that this murmur had been too closely associated with anæmia—in fact it had been generally explained on an anæmic basis. The author laid stress upon the facts that, even apart from anæmia, the murmur was common in neurotic individuals, in those who were "out of training," in connection with many fevers (especially during convalescence), in all of which conditions one might expect a "flabby" state of the body musculature and lowering of tone. In most of his cases the author had established a history of some strain, often inconsiderable to any normal individual. Under these conditions the ventricles of the heart were liable to suffer, especially at the weakest point of their outer boundary wall—

namely, the infundibulum, or conus arteriosus. The weak myocardium being strained resulted in incomplete systole or actual dilatation of the infundibulum, the blood being forced from the body of the right ventricle at systole through the unobliterated cavity of the infundibulum into the pulmonary artery. This, Dr. Travers Smith submitted, was the cause of the murmur. In proof of this view he urged the following points :—(1) The murmur disappears with rest in bed, recurs if patient is allowed up too soon ; (2) it is best heard at the junction of the infundibulum and pulmonary artery ; (3) it can be traced better downwards over the infundibulum, which comes to the surface, than upwards over the pulmonary artery, which slopes posteriorly ; (4) the murmur is heard best in expiration, because the pressure in the pulmonary artery is thereby raised with further strain on the infundibulum. The murmur can sometimes be actually produced by a prolonged expiratory phase ; (5) a slight, sudden exertion, as sitting up, diminishes the murmur, as it affords a stimulus to the infundibulum to contract more energetically. Occasionally the murmur increases on sitting up, showing greater weakness of the infundibulum ; (6) the murmur is commoner in youth owing to the relatively high pressure in the right ventricle as judged by the loud pulmonary second sound in youth ; (7) the murmur disappears with gross dilatation of the right ventricle when the dilatation of the infundibulum fuses with that of the body of the ventricle—in fact, it is not heard with a tricuspid regurgitant murmur ; (8) when a functional pulmonary diastolic murmur occurs with a systolic one (the author had met two examples) it is best explained upon the hypothesis that blood remaining in the infundibulum regurgitates thence into the body of the ventricle at its commencing diastole ; (9) almost invariably the area of superficial cardiac dulness is increased upwards in the presence of a pulmonary functional systolic murmur. Dr. Travers Smith urged that this view afforded the most rational explanation of the ætiology and clinical signs of the murmur.

DR. MOORHEAD said he regretted that Dr. Smith had not given them his views on the other functional murmurs. He had himself first accepted, without much thought, the idea that the functional murmurs generally were produced by some alteration in the normal relation between the blood and the vessel wall, accepting that normal blood flows through normal vessels without producing murmurs. Very soon, however, he had to give up

that idea, and he found it necessary to find some theory which would explain the murmurs heard in cases of acute endocarditis as well as the ordinary so-called functional murmurs. In such cases he could not conceive that the small vegetations that are seen on the edges of the valves were capable of preventing the valves from closing. He then took the view that functional murmurs and the murmur of acute endocarditis were due to muscular relaxation, and were functional in the sense that the muscle from its weakness relaxed, and regurgitation took place. Anything in the way of relaxation that would give rise to aortic systolic murmur—a rare condition, he admitted—would surely also give rise to a pulmonary functional murmur and to a mitral functional murmur. Although it was possible that Dr. Smith's theory would be applicable to the other valves he was not prepared to accept it fully.

DR. SMITH, in reply, said that Dr. Moorhead's mental phases in trying to find an explanation for functional murmurs were the same as his own. It was his intention to deal with the other murmurs in another paper. He did not think that Dr. Moorhead's suggestion, that pulmonary and mitral functional murmur ought to be present where an aortic murmur was present, was against his (Dr. Smith's) own view. The exact spot at which a murmur was heard did not indicate the seat of the murmur. He suggested that aortic systolic functional murmur, which was of extreme rarity, was to be explained by the pulmonary murmur, which was the commonest, and could be induced.

Spleno-megaly with Eosinophilia.

DR. PARSONS read a paper on the above subject, illustrating it by a case which he showed. He described the condition of the blood and the patient's general symptoms, and gave details of the history. He said treatment by X-rays had had no appreciable effect.

DR. ROWLETTE said he had seen the case some years previously, and the spleen did not appear to have increased in size. During observation the health of the patient had remained exceedingly good, apart from the discomfort through the weight and size of the tumour.

DR. PEACOCKE quoted a case which turned out a case of Hodgkin's disease. The splenic tumour was simply a mass of lymphoid tissue. An operation was successfully performed, and

he suggested the removal of the spleen in the case before them as a curative method.

DR. HARVEY said he had seen cases of an ordinary type treated with X-rays with apparently very different results from those in the present cases. Such treatment was likely to have altered the pathology of the spleen considerably. The effect in animals was to destroy the lymphocytes in considerable degree.

DR. PARSONS, replying to questions by Drs. Moorhead, Kirkpatrick, and Smith, said the patient at no time had syphilis. He did not consider the cases identical merely because they had eosinophilia. The cases were on the same level. There was no deterioration in health, no threatened shortening of life, and no inconvenience except in the weight of the tumours. Lymphocytosis was not very marked; exactly the same was found in the case of splenectomised animals, which tended to confirm his view that the two patients were functionally splenectomised. Several examinations of the blood had been made before the X-ray treatment was commenced, and there was found to be no diminution in the number of the lymphocytes. Anxious as he was to know the pathology of the spleen he did not feel justified in recommending its removal, as no inconvenience was caused, and no further enlargement was threatened.

SECTION OF OBSTETRICS.

President—R. D. PUREFOY, M.D., F.R.C.S.I.

Sectional Secretary—HENRY JELLETT, M.D., F.R.C.P.I.

Friday, November 16, 1906.

The PRESIDENT (Dr. R. D. PUREFOY) in the Chair.

SIR WILLIAM SMYLY showed a fibro-cystic tumour of the broad ligament weighing thirteen and a half pounds. He said that such tumours must be rare, as this was the first he had met with.

SIR ARTHUR MACAN asked whether the fluid from the tumour coagulated on being allowed to escape. The feeling of fluid in the tumour was an extraordinary one.

THE PRESIDENT recalled a specimen shown to the Academy some years ago, on which occasion Sir Arthur Macan remarked that surely there was fluid in it. A section was made at once, and there was not a trace of fluid. He mentioned the case as

showing that sometimes a tumour was met with which imparted a misleading sensation to the finger on examination.

DR. E. H. TWEEDY showed (a) tubal pregnancy, (b) perithelioma of uterus, (c) fibroids undergoing sarcomatous degeneration.

DR. ROWLETTE said that perithelioma had not been described until within the last few years. It was extremely likely that the tumour had been seen previously, but had been unrecognised. He recalled a case of tumour of the ovary presenting remarkable resemblances to that before them, which had been put before the Academy the previous year by Dr. Tweedy. The fibroid tumour was interesting on account of recent discussion as to whether such change really took place. From the naked-eye appearance one would not judge it to be sarcoma, but in the broad ligament there was a mass of softened tissue which looked extremely malignant. A section from the upper part of the tumour showed not fibrous tissue at all, but a mass of sarcoma cells. A section from the lower part of the uterus showed simply a degenerating mass of fibrous tissue. The case was, he thought, correctly described.

DR. KIDD asked if there was any method of knowing, before a section was made, whether the tumour was of a malignant nature or not; otherwise, except in extreme cases, the operator would run a great risk of infecting his patient.

SIR W. SMYLY thought that the splitting of such tumours was not free from risk. Within the last three years he had lost a patient through pus infection from an abscess which had been burst during operation.

THE PRESIDENT said that the bisecting of the uterus in some cases allowed them to secure the uterine vessels and avoid injuring the uterus. He recalled a case of removal for fibroid of the uterus. There was nothing in the aspect of the uterus to suggest that it was the seat of malignant disease. The patient made a good recovery from the operation, but when the uterus was examined afterwards it presented two large foci of malignant disease. He felt that if he had bisected the uterus he would have realised the state of affairs, but he would have run the risk of infecting the patient.

DR. TWEEDY replied.

THE PRESIDENT then read his Introductory Address, in which he referred to the work of the preceding Session, noticing the

various communications read by the members, including papers read by Dr. Delaharpe, of Bonn; Dr. Sheill, of the Coombe Hospital; Dr. Holmes, of the Rotunda; Dr. Ashe, of the Adelaide; and Sir A. Macan, and the Reports of the Rotunda Hospital—in one of which is recorded a case of spontaneous inversion of the uterus occurring in the hospital, while the patient was under observation. The theories recently adduced as to the causes of eclampsia were mentioned, and the value of the old treatment by bleeding, followed by saline transfusion, was emphasised. The views recently put forward by Halban as to the secretion furnished by the ovaries and placenta, and its influence on the genital organs of both mother and child, were noticed; also the supposed influence of luten tissue in causing the development of hydatidiform moles, malignant or otherwise. Reference was made to three causes of accidental hæmorrhage, recently reported, all of which ended fatally, and in all of which autopsy showed incomplete external rupture of the uterus had taken place. Dr. Savage's recent paper on "Ovarian Hæmatomata" received very favourable notice, and attention was directed to the renewed interest in, and good results obtained by, serum injections in puerperal sepsis.

Repeated Twin Abortions and Ventro-suspension.

DR. SPENCER SHEILL then read a paper on repeated abortion and ventro-suspension.

A woman, aged about thirty years, married four years, has had four abortions, all at about the tenth week, the first one being twins. There is a family history of twins—she has twin sisters. On the 3rd of May, 1905, he curetted the patient for an incomplete abortion, when she came under his care for the first time, and at that time he made the diagnosis of acute retroflexion with a fibroid, and recommended operation as she was very desirous of having a living child. She agreed, and on the 23rd of the following June he removed a pedunculated fibroid about the size of a hen's egg, which was attached to the fundus; and did a ventral suspension. The patient menstruated normally on July 19th and August 21st, her husband being away in the country. He returned—and cohabited with her for the first time since the operation—on September 1st, 1905, with the result that Dr. Sheill delivered the patient of a child, which showed every evidence of being full term, on the 16th of June, 1906, so that the conception must have taken place in or about September

16th, 1907—i.e., sixteen days after the husband's return. But on the 21st of October, 1905, exactly two calendar months after the last menses, the patient had a uterine hæmorrhage, and with it came away an ovum of about six weeks' development. The hæmorrhage was not very profuse and soon ceased. There was no pain, so active interference was withheld. The patient was taking potassium chlorate at this time. No further menses occurred, and, on examination early in January, 1906, Dr. Sheill diagnosticated a "uterus large enough for four and a half or five months' pregnancy, which might be a mole or a twin of the ovum aborted last October." With regard to the success of the operation, it is interesting to note that the ventro-suspension caused no pain, unusual vomiting or frequency of micturition during gestation; and that there was no dragging on or alteration in shape of the uterus other than a slight dimple at the fundus. The labour was uneventful, and the ventral scar showed no signs of weakness. A vaginal examination a month later showed the uterus to be normally involuted and in perfect position. An enlargement of the thyroid gland has been described in infants born of mothers who have been taking potassium chlorate during pregnancy with a view to prevent abortion. There was no such enlargement in the infant's thyroid in this case.

SIR W. SMYLY said he believed the displacement was a cause of complications. He approved of suspension, but many cases of retroversion—especially those which occurred after delivery—got well if treated with a pessary. He had no doubt that the living child was the result of Dr. Sheill's treatment.

PROFESSOR A. SMITH said he thought the displacement was due to the tumour dragging on the wall of the uterus. Dr. Sheill had acted wisely in removing the tumour and preserving the uterus. Of course, one could not say whether it was absolutely necessary to have suspended the uterus. He had removed fibroids from the back of the uterus, and it had righted itself after a time. Cases were well known in which one of the causes of the displacement of the uterus was the weight of a fibroid tumour dragging on it, and he knew of a series of cases of suspension of the uterus where pregnancy did not occur. He was a believer in suspension, but it was difficult to decide which method to follow.

DR. JELLETT said that for the last couple of years he had been doing a considerable number of radical cures of backwards displacement of the uterus, and of them five patients had been

confined in hospital after operation. In no case was there any trouble. He was inclined to the belief that, after a simple ventro-suspension, if the patient became pregnant, a return of the displacement was likely to occur. He had found no difficulty in Alexander's operation, and in no case had the immediate results been otherwise than excellent. He was therefore in favour of the Alexander operation in simple uncomplicated cases of retroversion of the uterus. There were, however, a number of cases in which it was entirely inapplicable, among which Dr. Sheill's case was, he thought, included.

SIR A. MACAN said the paper opened up the whole question as to whether every case of retroflexion was to be operated on. They should try to settle the indications, and until this was done he preferred treatment with the pessary. He considered the Alexander operation more reasonable than fixation against the abdominal walls. When the cornu of the uterus had been fixed almost into the internal abdominal ring, if the woman became pregnant, parts which were almost touching became stretched five inches, and he confessed that it appeared very strange to him that they should go back again after such stretching. The whole question was not near solution, and he was anxiously looking to some experience that would help him to make up his mind as to what cases he should operate on, and the best method.

DR. ASHE said it was impossible to say if Alexander's operation would be a success until one had ascertained by inspection the condition of the round ligaments.

DR. FITZGIBBON said that vaginal shortening of the round ligaments was not often mentioned, although it was easy to perform. He had seen a case two months afterwards, and the uterus was perfectly in place. By such a method an abdominal scar was avoided; but, if there had been pelvic inflammation, there would probably be adhesions between the uterus and the pelvic walls, in which case it would be necessary to open the abdomen.

DR. HASTINGS TWEEDY thought Sir Arthur Macan had taken a rather gloomy view of the many disastrous possibilities of ventro-suspension. It never occurred to him (Dr. Tweedy) to look forward with the least anxiety to pregnancy or labour following this operation. If a sufficient number of stitches were not placed in the uterus, a relapse would follow delivery. He thought

therefore the suspension should be made by two separate sutures. One could never say that occlusion of the tubes was not present until the abdomen was opened, and for this reason he considered Alexander's operation much inferior to the ventral suspension.

DR. HORNE thought that if there were adhesions they were bound to interfere with them; but, if not, he was inclined to replace the uterus and insert a pessary, even if the woman became pregnant.

THE PRESIDENT said that no single method could be considered free of the possibility of giving rise to complications. He remembered the case of a woman who had been operated on by Mr. Alexander himself, and who had aborted three times in the two succeeding years. It was obvious that the round ligaments might stretch and allow the recurrence of the displacement. The peritoneal adhesions which were formed in ventro-suspension might also stretch and give rise to various risks.

DR. SHEILL then replied.

The following card specimens were shown :—

DR. E. H. TWEEDY—(a) adeno-carcinoma of vulva; (b) epithelioma of vulva; (c) adenoma of uterus; (d) epithelioma of cervix; (e) myomatous uteri, 8; (f) pyosalpinx and salpingitis, 6; (g) ectopic pregnancies, 2; (h) ovarian cysts, 10.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following gentlemen, having passed the requisite examinations, were, at a meeting of the College held on December 17th, 1906, admitted ordinary Fellows:—William Clachan Allardice, M.D., Newcastle-under-Lyme; John Brydon, L.R.C.S.E., Stockton-on-Tees; Charles Vivian Cornish, M.R.C.S. Eng., London, N.W.; Hugh Stevenson Davidson, M.B., Ch.B., Edinburgh; David Dickie, M.B., Ch.B., Glasgow; Henry Norman Goode, M.B., M.R.C.S. Eng., York; Henry Warwick Illius, M.R.C.S. Eng., Captain I. M. S.; Robert William Johnstone, M.D., Edinburgh; Thomas William Kirby, M.D., M.R.C.S. Eng., Maple, Ontario; John Robert Lee, M.B., Melbourne; Thomas Edward Lloyd, M.R.C.S. Eng., Abergavenny; John Pettigrew Morton, M.B., L.R.C.P.E., Hamilton, Ontario; Thomas Young Simpson, M.D., M.R.C.S. Eng., Devonport; Hackworth Stuart, M.D., M.R.C.S. Eng., Hanley, Staffs.; and Frederick William Sydenham, M.D., Walsall, Staffs.

BERNARD CONNOR.

A Forgotten Irish Medical Exile and Scientific Pioneer of the Seventeenth Century (1666-1698). By JOHN KNOTT, M.A., M.D., Ch.B., and D.P.H. (Univ. Dub.); M.R.C.P.I.; M.R.I.A.; &c.

A NATIVE of the County of Kerry, born in the year of London's still celebrated "great fire," and of whose early training we can learn merely that: "Being of the Popish religion, he was not educated regularly in the grammar schools and university of that island; nevertheless, he had all proper learning given him;" and who managed to find his way to the University of Montpellier at the age of twenty, where he passed through a brilliant medical curriculum; thence to Rheims, where he graduated as Doctor of Physic; thence to Paris, where he rapidly distinguished himself in the practice of the profession of his choice; thence, after a curvilinear course of travel and sojourn through Southern and Central Europe, to Warsaw, where his previous reputation and personal magnetism so strongly and favourably impressed John Sobieski as to induce that celebrated monarch to request him to accept the office of Court physician before he had completed his twenty-eighth year—was assuredly an individual of whom his countrymen, and more especially those of his own profession, should not allow the memory to fade from their annals. Furthermore, when it is known that during his foreign travel he had freely conversed with, and most favourably impressed, the great pioneers of anatomy and physiology who made our present attainments possible—including Malpighi, Bellini, and Redi; that after a relatively short sojourn at the Court of the Polish monarch he proceeded to Belgium, where he met with the great leaders of science and philosophy in which the Netherlands was peculiarly rich at that period; that he then came to London, where he found that his fame had preceded and practice awaited him; that within a year from his arrival he had—before completing his twenty-ninth year—read courses of lectures in the University of Oxford (and soon after in Cambridge) as well as in London with the most brilliant success; that he was elected to the Fellowships of the Royal Society and of the College of Physicians; and—most significant, perhaps, of all—that in the

same year he received a letter in the handwriting of the Bishop of Ploskow, the then leading spiritual guide of the Court of Warsaw, containing a description of the grave symptoms from which his late master, the King of Poland, then suffered, with an earnest request for a prompt expression of opinion and advice—I venture to express the hope that no further apology is necessary to the readers of the DUBLIN MEDICAL JOURNAL for calling the passing attention of Irish physicians, in this now rapidly brightening dawn of our Irish Renaissance, to the phenomenal career of their illustrious fellow-countryman and brother physician. And when I have pointed out that the subject of this article published volumes which not only illuminated many of the darkest areas of contemporary science, but almost prophetically anticipated many items of the profoundest, and noisiest, theories and discoveries which have proved the pride (if sometimes the plague!) of our own generation; that he startled the scientific orthodoxy of his time almost as thoroughly as did Charles Darwin, and the theological stability of Saxondom almost as efficiently as did John Henry Newman, respectively, in the generation which has just passed away; that he published, in addition to various uniquely original scientific works, the best *History of Poland* which had up to that time appeared in the English language—which included rare items of natural history and medicine that had previously been absolutely unknown to British readers; and that he died a true Christian, soon after he had completed the thirty-second year of his age—I feel considerable confidence that no further testimony will be considered necessary to establish the lofty claim which the gifted Irish exile, Bernard Connor, most deservedly established on the admiring homage of not only all true Irish patriots and medical men devoted to their profession, but of all sympathisers with, and promoters of, the progress of science, of philosophy, and of philanthropy, throughout the civilised world; and of all votaries of genius, wherever located in time or space. “Born and reared” in one of the most unhappy localities of an oppressed and distracted country, and brought up in the bosom of a tabooed faith; excluded from the privilege of a possible university education in his own country, and driven forth to glean in the harvest-fields of learning in foreign lands—in all the loneliness of banishment, and bitterness of exclusion from his natural birth-right—Bernard Connor had, at an age at which the aristocrat of

the rising generation at home had but just exchanged a worthless and fruitless university career for the still more contemptible culture of the stable and the tavern, the hunting-field, the race-course, and the gambling-house—with all the unmentionable *etcæteras* thereunto adherent—already made himself, by sheer force of perseverance and brilliancy of genius, the intellectual equal of the foremost scientific leaders of his time; and became the trusted medical adviser of some of the most intelligent and critical members of the royalty and nobility of Western Europe during the few short years of his professional career. That he was able to establish such a record in the course of a life-pilgrimage of so brief duration surely offers another brilliant link in the continuous chain of testimony to the fact that Ireland has never, even in the darkest days of her history, been once found wanting in the possession of genius of the brightest and purest luminosity.

At this stage I would ask my readers, before proceeding to form a definite estimate of the genius and attainments of our Kerry exile, to recall the fact that the Paris in which Bernard Connor at once rose to the foremost scientific and social reputation was the French metropolis of the most inspired period of the unparalleled, and—according to even the experienced and philosophic (as well as cultured and discriminating) Lord Chesterfield—actually unprecedented, glow of the dazzling brilliancy of the galaxy of genius, wit, talent, taste, and culture which scintillated around, and illuminated within, the Court of the “Grand Monarque,” at that epoch of its most auspicious prosperity. It was the Paris which had recently been educated and inspired by the dramatic teachings of Molière; and was just then illuminated by the presence of Racine and the exhibition of his creations—works of which the plain unvarnished reading constituted one of the principal enjoyments of Napoleon’s lonely exile in St. Helena; the Paris which had but recently imbibed, and more or less completely assimilated, the philosophical and physical revelations (and opinions and theories) of Descartes and of Pascal; the Paris which was in progress of theological edification by the teachings of the respective authors of *Télémaque* and the *Variations des Églises Protestantes*; and was (exactly at this period) profiting by the perusal of the newly-published (posthumous) installation of the *Maximes Morales* of, possibly; one of its shrewdest—and, assuredly, one of its most unmoral—teachers, La Rochefoucauld.

From Paris, Connor passed to the Italy which had been swept during the past few generations by the successive primary waves of the intellectual agitation of the Renaissance, and was then gradually simmering down into the secondary ripples which characterised the evolution of the culture and diffusion of the exact and materialistic sciences; of anatomical, physiological, mechanical, telescopic, and microscopical studies and investigations. The minutely intimate structure of the tissues of organic bodies, of plants and of animals, were now, for the first time in the annals of science, subjected to an unceasing continuous course of elaborate scrutiny, with the aid of the newly-invented microscope. The critical spirit of discovery and doubt which had become so thoroughly epidemic all over Western Europe led to the investigation of the macroscopic structure of the human body, and those of other animals, and the teaching of the results obtained, with a degree of accuracy which had been previously unknown. A general knowledge of the circulation of the blood had become common property—barring that borderland section of its pilgrimage which occupied the debateable margin between the ends of the arteries and the beginnings of the veins. Of this murky region it was just believed that the blood was obliged to “muddle through it, somehow,” but nobody had definitely demonstrated the exact *how*. The overlying cloud was, for the first time, penetrated by the search-light brought to bear thereon by the illuminating genius of Malpighi, who discovered the presence, and demonstrated the functions, of the capillary blood-vessels; and also observed the curious (coloured) corpuscles which they conveyed in the contained fluid—whose dimensions they seemed specially constructed to accommodate. Both Bellini and Malpighi have indelibly stamped their names on the histology of the kidney; an organ which, from the beginning, formed a favourite hunting-ground for the microscopic explorer—as the *tubuli recti* and *glomeruli uriniferi* respectively testify. The old belief in *spontaneous generation* had been destructively attacked by Redi (1626–1688) in his laborious investigations of the genesis of insect life. Like that of the *circulation of the blood*, this problem had been very much “in the air” of the venerable “nursery of arts” from the early part of the epoch of the Renaissance; and William Harvey was (at least) fortunate to appear on that scene at the crucial date for their importation to his own country. What scanty record has been transmitted to posterity regarding the

intercourse of the members of this famous Italian trio of microscopic illumination with our meteoric fellow-countryman, all goes to show that they at once came to regard him as *primus inter pares*.

Passing through Bavaria on his way to the Polish metropolis, Connor's line of transit intersected the orbit of Georg Ernest Stahl, who was his senior by six years; and who was then engaged in the preliminary stages of the elaboration of his famous *Theoria Medica Vera*, which made him the most conspicuous medical luminary of Central Europe for the remainder of his career. Stahl's unrivalled attainments as a chemist, the foremost of his century, possesses at the present date an interest which is chiefly antiquarian; although the *phlogiston* theory, which he invented, governed the chemical world for nearly half a century—till it was superseded by the discoveries of Lavoisier. But his system of *Animism* is well worth looking into, even at the present date; and may be specially recommended to the attention of those who would trace backwards the development of the creed of the *Christian Science* of our twentieth century to its original genesis and early growth. Stahl emphatically enunciated the absolute power of the soul over the body, and the invariable presence of the agency of the will in every muscular movement—even those produced in the torpor of sleep and in the coma of apoplexy. However the value of this theory may be estimated in our generation there is no doubt that Stahl's practice—thereon based—supported as it was by his immense reputation, did a great deal towards the soothing of many a weakened and tortured mind during the trying hours of sickness and pain.

Connor's arrival at the Court of Warsaw marked the beginning of one of the most interesting stages of his curiously meteoric career. The justly celebrated John III. (Sobieski) was then King of that ill-fated country; he had come to the throne after the short and distracted reign of Michael (Wiesnowiski), which had succeeded the chaotic interregnum that followed the abdication of John Casimir. The last-named is probably best remembered by many English readers in connection with the "uncourteous ride" to which he once treated Ivan Mazeppa, who was the Ukraine's hetman at the precise period of Connor's brief but dazzling scientific career. Under the splendid leadership of John Sobieski, Poland had then enjoyed an unprecedented period of glory and repose (internal if not external). The evils of the

canker of caste had been veiled by the master hand. The planes of cleavage were exposed by his death, and along the lines of demarcation the external enemy found penetration easy—as it always is in a country whose occupants are so stratified.

The extreme appreciation of John Sobieski for the talents and attainments of our wandering Kerry genius is equally creditable to both; and offers a peculiarly happy illustration of the simultaneous appearance of two of the most inspiring and illuminating examples of humanity at its best, above the darkly-clouded horizons of two unhappily-fated countries. This duplex item of biography by itself proves that the prolonged experience of ruthless carnage and Machiavellian statesmanship which prevailed over Western Europe throughout his generation had no more extinguished the true principles of a Christian, a philosopher, a righteous ruler, and a genial patron in the breast of this potentate than had the social proscription, religious disabilities, and educational impossibilities, from which Bernard Connor was doomed to suffer in his early years, suffocated the latent flame of Celtic genius which kept his brain and heart on fire, and fairly dazzled the learned seniority of his contemporaries as soon as it was allowed to blaze openly, as it did during the last few years of his all too short life-pilgrimage. Of John Sobieski, we are told by Dr. South—"The King is a very well-spoken prince, very easy of access, and extreme civil, having most of the qualities requisite to form a complete gentleman. He is not only well-versed in all military affairs, but likewise, through the means of a French education, very opulently stored with all polite and scholastical learning. Besides his own tongue, the Slavonian, he understands the Latin, French, Italian, German, and Turkish languages. He delights much in natural history and in all the parts of physic. He is wont to reprimand the clergy for not admitting the modern philosophy, such as Le Grand's and Cartesius's, into the universities and schools, &c. . . ."

Another English writer on matters Polish has made the following remarks on the character and personality of this generously noble—as well as royal—patron of our illustrious countryman, in which he introduces an interesting comparison (and contrast) of his qualities and attainments with those of his phenomenal junior contemporary, Charles XII. of Sweden:—

"When Charles XII. of Sweden entered Cracow he visited the tomb of John Sobieski in order to pay a mark of respect to the

memory of that great monarch. He is reported, as he hung with reverence over his sepulchre, to have cried out, 'What a pity that so great a man should ever die!' May we not also exclaim, what a pity that a person, so impressed with a sense of Sobieski's virtues, should adopt only the military part of his character for the object of his imitation! How infinitely inferior is the Swedish to the Polish sovereign! The former, dead to all the finer feelings of humanity, was awake only to the calls of ambition; every other sentiment being lost in the ardour for military honours. If personal courage be sufficient to constitute a hero he possessed that quality, in an eminent degree; but it was rather the bravery of a common soldier than of a general. Sobieski, even in that view of his character, has an equal title to fame: for his valour was no less distinguished; and in one respect was superior, as it was not clouded with rashness, but was tempered with prudence. Though the first general of his age, he placed not his sole ambition in military glory; he was great in peace as well as in war: by the union of talents belonging to each department, he defended his country from impending danger, raised her from her fallen state, and delayed during his reign the æra of her decline; while Charles, who was deficient in civil virtues, plunged Sweden, which he found highly prosperous, into ruin and desolation. In a word, Charles had the enthusiasm of a knight-errant, and Sobieski the virtues of a hero.

"But the æra of John Sobieski, splendid in itself, appears more luminous when contrasted with the darkness which preceded and followed. The reigns of his immediate predecessor and successor were convulsed with internal commotions; but the spirit of discord and anarchy was laid for a time by his transcendent genius. Under his auspices Poland seemed to revive from the calamities which had long oppressed her, and again to recover her ancient splendour: such is the powerful ascendancy of a great and superior mind. His military talents require no other testimony than the victory of Choczim, the recovery of the Ukraine, repeated defeats of the Turks and Tartars, and the delivery of Vienna: while an exact insight into the laws and constitution of his country, a manly and persuasive eloquence, a love and protection of literature, an accurate knowledge of foreign languages, and an unceasing habit of affability, moderation, and temperance render him no less an object of our admiration in his civil capacity."

It was at the Court of this ἀναξ ἀνδρῶν, this ideal leader of men, that Bernard Connor had directly intimated to him from the lips of royalty the gratifying request that he would accept and retain the office of physician-in-chief. He accepted, but did not long retain; his restless spirit did not seem to have found its proper medium. He was, however, peculiarly fortunate in his opportunities during the few short months of his occupation. The Duchess of Bedzivil, the only sister of John Sobieski, was suffering from febrile symptoms of an intermittent character, and all the physicians of his Court had pronounced her disease to be "no more than an ague;" and had agreed upon a treatment with "the bark," by means of which they expressed the fullest confidence of recovery. When Connor examined the noble patient he at once arrived at a diagnosis of abscess of the liver, and pronounced her condition hopeless. As she actually died within a month after, and a *post-mortem* examination proved the accuracy of Connor's opinion, it need hardly be added that the effect on his reputation was sensational and colossal!

Indeed all Connor's movements from his entrance into the medical profession would almost seem to constitute a continuous triumphal progress. The reputation for scientific superiority and untarnished honour which he had acquired at the French capital joined to his personal magnetism and social tact in securing for him the responsible position of travelling Mentor to the two sons of the Lord High Chancellor of Poland on their curvilinear homeward journey. Those youths he conducted to Venice, with the object of expanding their minds by the experiences in which the sea-born Queen of the Adriatic was always so richly profuse. He there found Mr. Legge—afterwards Earl of Dartmouth—"very ill of a fever," sick and afflicted in both body and mind; cured him, and accompanied him to Padua. From the quaint and famous "nursery of arts" he passed, through the Tyrol and Bavaria, to Austria, where he embarked on the Danube and proceeded to Vienna.

After a short sojourn at the Court of the Emperor Leopold, he proceeded, through Moravia and Silesia, to Cracow. From the latter city he passed in eight days to Warsaw, where he at once made his auspicious *début* at the Court of John Sobieski. And Connor's longed-for excuse for his departure from the latter was afforded by the espousal (by proxy) of the Polish King's only daughter, the beautiful and celebrated Princess Teresa

Cunigunda, to the Elector of Bavaria (August, 1694). As she was obliged, in order to carry out the requisite ceremony, to travel from Warsaw to Brussels, a distance of nearly 1,000 miles, and in the midst of the very inhospitable winter of these regions, it was thought very desirable—in those days of roughly-constructed coaches, driven on indescribable (pre-Macadamite) roads—that the royal *fiancée* should be accompanied by a physician. And so the appreciative royal patron was led to yield his hard assent to the laboursome petition of his esteemed medical favourite, and John Sobieski entrusted the sole daughter of his house and heart to the medical advice (and general guidance) of Bernard Connor for this very tangled journey; and the latter conveyed his royal charge safely and prosperously to the Belgian capital. The great Polish monarch did not long survive; he died June 17, 1696.

From about the beginning of Connor's century the waves of Renaissance thought had, with phenomenal activity, been lashing themselves into creative foam on the curiously lion-limned border of the Belgian coast and the barrier dykes of half-drowned Holland. The creatively constructive, as well as explosively destructive, philosophy and science of René Descartes (1596–1650) had generated an earthquake-wave of intellectual disturbance which swept all Western Europe in his own generation, and whose undulations are distinctly felt even in ours. And the scientific seeds which had been so actively sown by the “founder of modern philosophy” had just had time to bear ripe fruit at the date of Connor's passage through the Low Countries. The ponderous intellectual atmosphere of Holland had been thunder-swept by the political convulsion which had culminated in the butchery of the De Witts some two-and-twenty years before. And all those storms had combined to clear the intellectual firmament for the respectively epoch-making scientific careers of Huyghens (1629–1695), of Leeuwenhoek (1632–1723), of Swammerdam (1637–1680), and of Boerhaave (1668–1738). Of those giants of physical and biological thought, it might well be said, in the sublime language of the author of *Childe Harold*, that :

“These were four minds which, like the Elements,
Might furnish forth Creation!”

at least the scientific department of the resulting universe, as we know it; which, unquestionably, they very largely contributed towards doing. Of these four colossal pillars of modern science,

the first (Huyghens) is the only one whose lines of research were not largely coincident with those of Connor himself—and he died the year after the latter had visited the Netherlands. The names of the others are probably better known on that account to most medical men, but their works have long ceased to be familiar. Yet all will be found to contain matters suggestive of “modern *discovery*,” and inspiring to the earnest student. Leeuwenhoek disputes with Malpighi the credit of being the earliest discoverer of the red blood-corpuscles; and undoubtedly anticipated many modern items of bacteriology—of its *works*, as distinguished from the *faith* now thereunto annexed. Swammerdam appears to have monopolised the first view of the “white” blood-corpuscles; and he placed before the world many weird, and decidedly “creepy,” revelations regarding the genesis and anatomical structure of *pediculi* and other insects. Hermann Boerhaave, who afterwards built up the most colossal medical and medico-physical reputation of the age, had just taken his degree of doctor of physic; and was settling down to practice at Leyden, whose medical school he afterwards made the most famous in existence.

From the Holland of Leeuwenhoek and Swammerdam, after the Bavaria of Stahl and the Italy of Malpighi, Bernard Connor passed over to the England of Robert Boyle and of Isaac Newton, of John Locke and Jonathan Swift. England’s morals, politics, and philosophic thought had, in the past generation, been tried in the fiery furnace of the Civil War and the somewhat unedifying accompaniments of the “Glorious Restoration”; the country had just perpetrated a new “Glorious Revolution,” and loudly announced its satisfaction with the results obtained. The intellectual activity of England at that period was, indeed, very great—as it always is at corresponding epochs in the life-history of a nation. Defoe was engaged in the composition of the romances, and Evelyn and Pepys in that of the diaries, whose respective charms and interests seem to increase with each passing generation. Baxter and Bunyan had but quite recently passed away; so had Milton, and Butler, and Otway; the sceptre of English poetry was wielded by the hand of John Dryden; Alexander Pope had just completed his septennial period of childhood, and was soon to commence to “lisp in numbers.” In the same generation in which Milton had created his immortal poems, the mathematical Isaac Barrow had produced

the theological prose of which the perusal was one of the lifelong delights of Byron ; Thomas Fuller, " the quaint," had made the usually very ponderous subject of *Church History* more readable than any romance, by the unique attractiveness of his richly—and riotously—imaginative style ; and the probably highest literary water-mark ever attained by any writer not actually inspired, in the prose discussion of subjects sacred, was reached in the gorgeously floriated composition and diction of Jeremy Taylor, who must surely have imbibed the most distinctive characteristics of his unmistakably Celtic genius during his prolonged sojourn on our Irish soil. John Bunyan had presented his contemporaries with one of the most profound allegories which lay-Christian intellect has ever produced—outlined and illustrated throughout in language of the child-like simplicity so appropriate to the conveyance of inspired truth. Izaak Walton had produced one of the most quaint—and highly-appreciated—of our English classics. Thomas Sydenham had laid the solid foundation of modern clinical medicine ; Thomas Browne had purged the " learned Vulgar " of a very large proportion of their time-honoured " Errors," of fact and of faith ; Robert Boyle had given the most original and effective impulse to English chemical and physical science ; Ralph Cudworth had raised a colossal monument to philosophical learning and criticism in his *Intellectual System of the Universe* ; Bishop Wilkins, whose radiant imagination shines through his mathematical (as well as theological) disquisitions, had explained to the English public the easiest, as well as safest, *Way to the Moon*. Tillotson passed away in the year of Connor's arrival in England. Stillingfleet was in his sixtieth year. Prose and poetry, general and specialised, political and philosophical, were now powerfully wielded by the characteristic Hibernian genius of Jonathan Swift (1667–1745) who first saw the light in the year next following that which witnessed the birth of Bernard Connor ; an annual cycle which is further noticeable for the death of Jeremy Taylor (1613–1667), " the Shakespeare of Divines " ; and the publication of England's greatest epic, the " *Paradise Lost*." Two years later still was born, in the city of Londonderry, John Toland (1669–1722), " the founder of modern Rationalism "—who thus came to form the third brilliant item in the stellar triad of that ternary constellation of Irish genius which so brightly and significantly illuminated the intellectual firmament in the waning

twilight of the closing years of the seventeenth century. Samuel Garth, M.D. (1661-1719), of *Dispensary* celebrity; Sir Richard Blackmore, M.D. (1650-1729), noted for production of ponderous epics, written "to the rumbling of his chariot wheels"; John Arbuthnot, M.D. (1667-1735), of surpassing table-wit, and familiarity with ancient *Weights and Measures*; and John Radcliffe, M.D. (1650-1714), whose name is stamped on the Oxford Library and Observatory of his gift—a personality of parts and attainments apparently indescribable, and of whom Garth said (with perhaps an extra spice of the characteristically "brotherly" love) that: "for R. to leave a library, was if an eunuch should found a seraglio"—with various other memorable specimens of wit and genius, medical and non-medical, were well in evidence. The more rigidly scientific aspects of our profession were also diligently cared for: Nehemiah Grew (1641-1712) had laid the very solid foundation of English scientific and microscopical botany—also discovered *Epsom salt*, and described and figured "*Peyer's*" patches some time before their discovery by the anatomist whose name is now permanently associated therewith. John Ray (1628-1705), the "Father of English Natural History," was then at the acme of his fame and activity; Thomas Sydenham (1624-1689), "the English Hippocrates" and founder of modern Clinical Medicine, had just recently passed away. Richard Mead (1673-1754), the future leading star of London's medical practice, had reached his majority a year or so before Bernard Connor's arrival in England; Joseph Addison (1672-1719), its daintiest prose-writer, another year earlier. Dramatic literature still partook—richly—of the flavour of the "Restoration"; so we may well let it pass with the casual remarks that: Aphra Behn was a contemporary; George Farquhar, another (Northern) Irishman, was Connor's junior by some twelve years; and Sir John Vanbrugh was born in the same year in which the latter first inhaled his native Kerry atmosphere.

(To be continued.)

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, December 1, 1906.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending December 1, 1906, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 20.0 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,101,499. The deaths registered in each of the four weeks ended Saturday, December 1, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Nov. 10	Nov. 17	Nov. 24	Dec. 1			Nov. 10	Nov. 17	Nov. 24	Dec. 1	
22 Town Districts	21.6	21.5	21.8	20.0	21.2	Lisburn	22.7	18.2	31.8	18.2	22.7
Armagh	20.6	18.7	6.9	0.0	10.3	Londonderry	17.4	17.4	13.6	13.6	15.5
Ballymena	38.3	14.4	9.6	19.2	20.4	Lurgan	18.8	22.1	22.1	8.9	16.6
Belfast	18.7	20.6	17.8	18.2	18.8	Newry	8.4	16.8	16.8	16.8	14.7
Clonmel	51.8	10.8	35.9	5.1	25.6	Newtownards	11.4	17.2	34.3	23.6	22.9
Cork	26.7	26.0	30.8	19.2	25.7	Portadown	10.3	10.3	20.7	25.8	16.8
Drogheda	20.4	24.5	28.6	16.3	22.4	Queenstown	19.8	19.8	19.8	6.6	16.5
Dublin (Reg. Area)	24.9	25.6	23.8	23.8	24.5	Sligo	14.4	14.4	9.6	19.2	14.4
Dundalk	16.0	23.9	4.0	8.0	18.0	Tralee	31.7	15.9	10.6	5.3	15.9
Galway	11.7	7.8	11.7	15.5	11.7	Waterford	21.4	7.8	29.2	21.4	20.0
Kilkenny	24.6	19.7	68.8	14.7	31.9	Wexford	14.0	23.3	18.7	56.0	28.0
Limerick	17.8	15.0	26.0	21.9	20.2						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, December 1, 1906, were equal to an annual rate of 1.5 per 1,000—the rates varying from 0.0 in seventeen of the districts to 4.5 in Lisburn, the 4 deaths from all causes in that district including one from whooping-cough. Among the 128 deaths from all causes registered in Belfast are one from measles, one from scarlet fever, one from typhus, 2 from whooping-cough, 3 from enteric fever, and 4 from diarrhœal diseases. The 16 deaths from all causes in Limerick include one from enteric fever.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, December 1, 1906, amounted to 289—154 boys and 135 girls; and the deaths to 179—78 males and 101 females.

DEATHS.

The registered deaths represent an annual rate of mortality of 24.6 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the Area, the rate was 23.8 per 1,000. During the forty-eight weeks ending with Saturday, December 1, the death-rate averaged 23.3, and was 1.9 below the mean rate for the corresponding portions of the ten years, 1896—1905.

The 179 deaths registered include 3 deaths from measles, one death from scarlet fever, 3 deaths from whooping-cough, 2 from diphtheria, 3 from enteric fever, and 4 from diarrhœal diseases. In each of the 3 preceding weeks, deaths from measles were 6, 9, and 9; deaths from scarlet fever were 0, 0, and 0; deaths from whooping-cough were 2, one, and 2; deaths from diphtheria were one, 0, and one; deaths from enteric fever were one, one, and one; and deaths from diarrhœal diseases were 2, 3, and 6. Two deaths were attributed to influenza.

Broncho-pneumonia caused 7 deaths, and *pneumonia* (not defined) caused 4 deaths.

Of 25 deaths from all forms of tuberculous disease, one was from tuberculous phthisis, 12 were returned as from *phthisis*, 2 were from tubercular meningitis, one was from tubercular peritonitis, one from *tabes mesenterica*, and 8 were from other forms of the disease. In the 3 weeks preceding, deaths from all forms of tuberculous disease numbered 40, 24, and 34 respectively.

There were 3 deaths from carcinoma and 6 from cancer (undefined).

Four deaths of infants, prematurely born, were registered.

Diseases of the brain and nervous system caused 16 deaths, including the deaths of 5 infants (all under one year of age) from *convulsions*.

There were 23 deaths from diseases of the heart and blood vessels, and 25 from bronchitis. Three deaths were caused by accidental violence, 2 having been caused by burns, one of the latter being the death of a child under 5 years of age.

In 6 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 5 children under 5 years of age (including 4 infants under one year old) and the death of one person aged 76 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended December 1, 1906, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Furunculæ	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Nov. 10	-	•	•	4	1	-	4	-	8	7	9	-	•	•	•	28
	Nov. 17	-	•	•	1	-	-	6	-	2	9	10	-	•	•	•	42
	Nov. 24	-	•	•	3	-	-	3	-	3	11	-	-	•	•	•	28
	Dec. 1	-	•	•	4	-	-	8	-	8	10	10	-	•	•	•	33
Rathmines and Rathgar Urban District	Nov. 10	-	•	•	1	-	-	-	-	-	1	1	-	•	•	•	3
	Nov. 17	-	•	•	2	-	-	3	-	-	-	-	-	•	•	•	5
	Nov. 24	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Dec. 1	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
Pembroke Urban District	Nov. 10	-	-	-	-	-	-	-	-	-	1	1	-	•	-	-	2
	Nov. 17	-	-	-	-	-	-	-	-	-	1	1	-	•	-	-	1
	Nov. 24	-	-	-	-	-	-	-	-	-	1	1	-	•	-	-	1
	Dec. 1	-	-	-	-	-	-	1	-	-	1	1	-	•	-	-	2
Blackrock Urban District	Nov. 10	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Nov. 17	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Nov. 24	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Dec. 1	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
Kingstown Urban District	Nov. 10	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	1
	Nov. 17	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Nov. 24	-	•	•	2	-	-	-	-	-	-	-	-	•	•	•	2
	Dec. 1	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
City of Belfast	Nov. 10	-	•	•	41	2	-	9	1	11	7	9	2	•	•	•	83
	Nov. 17	-	•	•	25	-	-	8	2	7	8	9	-	•	•	•	84
	Nov. 24	-	•	•	40	-	-	6	-	7	10	12	1	•	•	•	76
	Dec. 1	-	•	•	21	-	-	10	1	4	6	10	-	•	•	•	52

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

Twenty cases of measles were admitted into hospital during the week ended Saturday, December 1, 29 were discharged, and 45 cases remained under treatment at its close.

Nine cases of scarlet fever were admitted to hospital, 13 were discharged, there was one death, and 72 cases remained under treatment at the close of the week. This number is exclusive of 13 convalescents under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital, Dublin.

Six cases of diphtheria were admitted to hospital, 3 were discharged, there was one death, and 21 patients remained under treatment at the close of the week.

Seven cases of enteric fever were admitted to hospital, 14 were

discharged, there was one death, and 50 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 10 cases of pneumonia were admitted to hospital, 8 were discharged, and 31 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended December 1, in 76 large English towns, including London (in which the rate was 15.5), was equal to an average annual death-rate of 15.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 17.6 per 1,000, the rate for Glasgow being 17.0, and for Edinburgh 14.2.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, M.D., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended December 1, 1906. From this Report it appears that of a total of 54 cases notified 21 were scarlet fever, 17 erysipelas, 13 diphtheria, and 2 enteric fever. Among the 280 cases of infectious diseases in hospital at the close of the week were 109 cases of scarlet fever, 44 of diphtheria, 43 of measles, 19 of erysipelas, 18 of enteric fever, and 3 of whooping-cough.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of November, 1906.

Mean Height of Barometer, - - -	29.855 inches.
Maximal Height of Barometer (11th, at 9 a.m.), - - -	30.535 "
Minimal Height of Barometer (18th, at 9 p.m.), - - -	29.093 "
Mean Dry-bulb Temperature, - - -	46.7°.
Mean Wet-bulb Temperature, - - -	44.6°.
Mean Dew-point Temperature, - - -	42.2°.
Mean Elastic Force (Tension of Aqueous Vapour), - - -	.274 inch.
Mean Humidity, - - -	85.0 per cent.
Highest Temperature in Shade (on 24th), - - -	64.4°.
Lowest Temperature in Shade (on 20th), - - -	33.0°.
Lowest Temperature on Grass (Radiation) (18th), - - -	27.8°.
Mean Amount of Cloud, - - -	65.9 per cent.
Rainfall (on 17 days), - - -	1.562 inches.
Greatest Daily Rainfall (on 4th), - - -	.264 inch.
General Directions of Wind, - - -	W., S.W.

Remarks.

A dull, damp and showery month, as well as very mild and open. At the beginning, and also from the 17th to the 20th, temperature was rather low. On Sunday, the 18th, the thermometer ranged from 33.9° to 40.9° , the mean being 37.4° , or some 8° below the average. On the 21st a remarkable and sudden increase in temperature occurred, with the setting in of an equatorial air current which held to the close of the month. The 22nd was wonderfully warm—the extreme readings of the thermometers in the screen being—lowest 56.9° , highest 63.0° , and the mean 60.0° . On Saturday, the 24th, the screened thermometer rose to 64.4° at Fitzwilliam Square, Dublin, and to 65.4° in Trinity College, Dublin. In the week ended Saturday, the 10th, calms or easterly and north-easterly winds prevailed, but through the remainder of the month the wind was invariably westerly or south-westerly. A sharp thunderstorm with vivid lightning and heavy hail-showers passed in from St. George's Channel over the counties Dublin and Wicklow on the afternoon of Sunday, the 4th. Snow lay on the Dublin mountains on the 18th and two following days. A splendid double lunar rainbow, with prismatic colouring, was seen from Dublin about 8 p.m. of the 29th. A westerly gale and showers of drifting rain prevailed at the time.

In Dublin the arithmetical mean temperature (47.6°) was 2.2° above the average (45.4°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 46.7° . In the forty-two years ending with 1906, November was coldest in 1878 (M. T. = 38.2°), and in 1870 (M. T. = 42.2°); warmest in 1899 (M. T. = 50.7°), and in 1881 (M. T. = 50.3°). In 1905 the M. T. was 42.7° .

The mean height of the barometer was 29.855 inches, or 0.005 inch below the corrected average value for November—namely, 29.860 inches. The mercury rose to 30.535 inches at 9 a.m. of the 11th, and fell to 29.093 inches at 9 p.m. of the 18th. The observed range of atmospheric pressure was, therefore, 1.442 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 46.7° , or 3.3° below the value for October, 1905. The arithmetical mean of the maximal and minimal readings was 47.6° , compared with a thirty years' (1871-1900) average of 45.4° . On the 24th the thermometer in the screen rose to 64.4° —wind, S.S.W.; on the

20th the temperature fell to 33.0° —wind, W.S.W. The minimum on the grass was 27.8° on the 18th.

The rainfall was 1.562 inches on 17 days—the rainfall was much below, and rainy days were equal to, the average. The average rainfall for November in the thirty-five years, 1866-1900, inclusive, was 2.560 inches, and the average number of rainy days was 17.0. In 1888, 6.459 inches fell on 26 days. On the other hand, the rainfall in 1896 was only .664 inch on 9 days. In 1905 the rainfall was 3.551 inches on 19 days.

High winds were noted on 13 days, and attained the force of a gale on five days—the 9th, 15th, 17th, 29th and 30th. The atmosphere was more or less foggy in Dublin on the 3rd, 5th, 6th, 24th and 25th. Solar halos were seen on the 20th, 25th and 30th; a lunar halo appeared on the 2nd, and again on the 25th. There were lunar coronas on the 24th, 25th and 28th. Sleet or snow fell on the 18th; hail on the 4th and 5th. A thunder-storm occurred on the afternoon of the 4th. There was a bright-coloured double lunar rainbow on the evening of the 29th.

The rainfall in Dublin during the eleven months ending Nov. 30th amounted to 21.001 inches on 185 days, compared with 15.378 inches on 141 days during the same period in 1887, 24.086 inches on 156 days in 1901, 27.812 inches on 190 days in 1902, 30.015 inches on 212 days in 1903, 20.678 inches on 172 days in 1904, 24.013 inches on 180 days in 1905, and a thirty-five years' average of 25.380 inches on 180 days.

At the Normal Climatological Station in Trinity College, Dublin, Mr. Thomas H. Hill, Sch., reports that the mean height of the barometer was 29.855 inches, the range of atmospheric pressure being from 30.528 inches at 9 a.m. of the 11th to 29.084 inches at 9 a.m. of the 18th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 47.3° . The arithmetical mean of the daily maximal and minimal temperatures was also 47.3° . The screened thermometers rose to 65.4° on the 24th, and fell to 32.9° on the 20th. On the 18th the grass minimum was 24.6° . On the 22nd the black bulb *in vacuo* rose to 91.9° . Rain fell on 17 days to the amount of 1.386 inches, the greatest fall in 24 hours being .280 inch on the 7th. The duration of bright sunshine, according to the Campbell-Stokes recorder was 43.8 hours, of which 6.1 hours occurred on the 2nd. The mean daily sunshine was 1.5 hours. The mean temperature

of the soil at a depth of one foot was 45.9° at 9 a.m. ; at a depth of 4 feet, it was 48.8° at 9 a.m.

At Cloneevin, Killiney, Co. Dublin, Mr. Robert O'B. Furlong, C.B., states that 1.62 inches of rain fell on 18 days, compared with a twenty-one years' (1885-1905) average of 3.040 inches on 16 days. The maximal fall in 24 hours was .36 inch on the 4th. Since January 1, 1906, 20.22 inches of rain have fallen at this station on 183 days. The corresponding figures for 1901 were 26.10 inches on 161 days ; 1902, 30.18 inches on 178 days ; 1903, 30.05 inches on 203 days ; 1904, 20.39 inches on 166 days ; and 1905, 25.95 inches on 167 days. Thunder and lightning occurred on the 4th with a heavy hail-storm. There was a strong S.W. gale on the 29th.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was 1.630 inches on 12 days. Of the total quantity .340 inch fell on the 19th. From January 1st, 1906, up to November 30th, rain fell at Greystones on 140 days to the amount of 22.628 inches. The corresponding figures for 1901 were 31.425 inches on 147 days ; 1902, 37.101 inches on 157 days ; 1903, 33.070 inches on 193 days ; 1904, 23.572 inches on 160 days ; and 1905, 27.515 inches on 150 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 15 days to the amount of 1.60 inches, the greatest measurement in 24 hours being .30 inch on the 4th. In November, 1901, the rainfall was 3.53 inches on 8 days ; in 1902, it was 4.61 inches on 17 days ; in 1903, 1.93 inches on 14 days ; in 1904, 1.26 inches on 11 days ; and in 1905, 4.35 inches on 22 days. The mean temperature in the shade was 46.8° , the range being from 35° on the 19th and 20th to 63° on the 24th. There was a thunderstorm on the 4th.

At White Cross, Stillorgan, Co. Dublin, Miss Muriel E. O'Sullivan measured 1.375 inches of rain on 14 days. The heaviest rainfall in 24 hours was that which accompanied the thunderstorm of the 4th—namely, .285 inch. After the 18th only .115 inch fell on 3 days.

Dr. Christopher Joynt, F.R.C.P.I., registered 1.485 inches on 16 days at Leeson Park, Dublin. The maximum in 24 hours was .253 inch on the 7th. In the thunderstorm of the 4th the record was only .199 inch. In November, 1905, 3.795 inches of rain had been recorded at this station.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 1.802 inches on 15 days; the greatest fall in 24 hours being .285 inch on the 18th. The mean shade temperature was 41.9°, the extremes being—highest, 60.0° on the 22nd; lowest, 28° on the 17th, 19th and 20th.

In the City of Cork Mr. William Miller returns the rainfall at 3.14 inches, or .92 inch below the average for November. There were 18 rainy days. The heaviest fall in 24 hours was .80 inch on the 5th. Up to November 30th, the rainfall of 1906 amounted to 27.98 inches, that is 5.77 inches less than the average for eleven months of the year.

At Dunmanway Rectory, Co. Cork, the Rev. Arthur Wilson, M.A., registered a rainfall of 4.07 inches on 20 days, the heaviest falls in 24 hours being .76 inch on the 20th, .60 inch on the 6th, .47 inch on the 3rd, and .41 inch on the 4th. The rainfall of 1906 to November 30 at this station amounts to 47.36 inches.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 15 days to the amount of 1.900 inches, the largest measurement in 24 hours being .450 inch on the 7th. The total amount of sunshine was 53.7 hours, the most in one day being 6.8 hours, on the 24th.

Dr. T. H. Peyton, Resident Medical Officer, returns the rainfall in November at the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, at 1.680 inches on 18 days. The largest measurements in 24 hours were .320 inch on the 20th and .319 inch on the 3rd. Up to November 30, rain had fallen at this station on 170 days to the amount of 25.096 inches. The mean shade temperature for the month was 46.1° F. The thermometer rose to 59.0° on the 25th, and fell to 31.5° on the 4th.

Dr. J. Byrne Power, D.P.H., F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature of that health resort was 48°, being 1.5° above the average for November during 19 previous years (1873-83 and 1898-1905). The extremes were—highest, 64° on the 25th; lowest, 33° on the 18th. The high temperatures between the 21st and 25th were very remarkable—viz., 61° on the 21st, 62° on the 22nd, 60° on the 23rd, 62° on the 24th, and 64° on the 25th. At Bournemouth the mean was 46°, the extremes being—highest, 60° on the 22nd; lowest, 30° on the 13th and 14th. The mean daily range was 9.4°, at Bournemouth it was 10.1°. The average relative humidity was 79 per cent., being 1 per cent.

below the average for the month during the previous 5 years. The mean temperature of the sea at Sandycove Point was 47.7° , being 1.9° above the average for the month during the previous 8 years. The rainfall amounted to 1.45 inches on 14 days, being 1.23 inches below the average for November during 16 previous years (1873-83 and 1901-05). At Bournemouth the rainfall was 3.86 inches on 20 days. The total duration of bright sunshine was 68.3 hours, being 14.6 hours above the average for the month during the previous 5 years. The greatest duration for any one day was 8.2 hours on the 2nd. The total duration at Southport was 43.2 hours, and at Bournemouth 63.3 hours.

CLINICAL THERMOMETRY FORESHADOWED.

THE famous self-taught scientist, James Ferguson, published, in 1767, a volume of "Tables and Tracts, relative to several Arts and Sciences." One section dealt with: "How to find two requisite points in the tube of a thermometer, and then to divide the scale thereof." The following extract contains matter of interest to medical readers—indicating, as it does, one of the earliest foreshadowings of the coming clinical thermometry: "Air, in severe cold weather in Britain, from 15 to 25. Air at midsummer, from 65 to 68. Extreme heat of the summer sun, from 86 to 100. Human heat, about 97. Butter just melting, 95. Alcohol (or pure spirits) boils with 174 or 175, brandy with 190, water with 212, oil of turpentine with 550, and tin melts with 408. Milk freezes about 30, vinegar about 28, and blood about 27. "If the tube be not long enough to bear boiling water, first find the freezing point, as above directed; and then put the bulb under your arm-pit, next to your skin, and hold it there as long as you observe the mercury to rise in the tube, and then make a mark on the tube where the mercury settles. This done apply the tube to the intended scale; on which place 32 at the first mark, for the freezing point, and 97 at the second mark for the degree of human heat. Then divide the space between these two numbers on the scale, into 65 equal parts, and continue these divisions above 65, and below 32, as far as the tube goes; . . ."

PERISCOPE.

MALARIAL FEVER CONTRACTED IN PORTSMOUTH.

MAJOR R. J. COPELAND and MAJOR F. SMITH, D.S.O., Royal Army Medical Corps, report the following case in the *Journal of the Royal Army Medical Corps*, August, 1906 :—Gunner X, of the Royal Garrison Artillery, aged eighteen years and seven months, service four years and three months, came sick complaining of headache, &c. His temperature was above normal; he was taken into hospital. He appeared to have recovered, but after a day of apyrexia he had a rigor and his temperature again rose high. Ultimately his chart showed a typical tertian ague appearance. He now had considerable enlargement of the spleen. In spite of the peculiar nature of the fever, malaria was not at first suspected in this case, owing to the history, but, on June 18th, specimens of the blood were examined by means of Leishman's stain. Tertian parasites in abundance were found. The fever disappeared under quinine, and a week later the man returned to duty. The extraordinary thing about this case is that the man has never been out of England. Malarial fever, as far as we know, disappeared from England many years ago. Certainly the disease is quite unknown in Hampshire. The last recorded prevalence in the Army at home took place among some soldiers at Tilbury Fort (Army Medical Department Report, 1875, by Surgeon-Major J. G. Faught). Then how did Gunner X acquire fever? He is stationed in Clarence Barracks—new buildings in a large, dry, airy space, and not near any water, except the sea, on the Southsea parade. A most careful search of the building, on the first floor of which is situated room 3, in which Gunner X lives, revealed nothing that could throw any light on the cause of fever—that is to say, there were no mosquitos in the rooms, and there was no standing water about. There are over a dozen men in the room. It is a curious coincidence that one of them, not long home from abroad, was suffering from fever in May and was taken into hospital on the 15th of that month with tertian fever. He was then found to have many tertian parasites—including gametes—in his blood. On May 24th this man, Gunner Y, was discharged from hospital, and he returned to room 3. On June 12th Gunner X was admitted to

hospital. Gunner Y says he had no fever after he left hospital. No other fever cases have occurred recently in room 3. The dates of the two cases mentioned suggest that Gunner X got his fever from Gunner Y, but how? The men do not appear to have had any particular communication with each other. We are driven then to the speculation that we have here an instance in which the flea or the bug has acted as transmitter—possibly, but not necessarily, by direct conveyance of fresh blood from man to man. In any case the occurrence opens a wide field for reflection and goes a long way in explanation of the cause of some failures to stamp out fever by destroying mosquitos. For the mosquito does not seem to have been concerned in this attack of malaria. There is a loophole for possible escape from this conclusion however. Gunner X spent the Whitsuntide holiday with his parents at the Isle of Wight, in Carisbrooke Castle, of which his father was then caretaker during the Deputy-Governor's absence. The first symptoms of illness were noticed eight days after Gunner X's first night at Carisbrooke. Duty at manoeuvres and pressure of other work has prevented our making a full inquiry on this point, but one of us (F. S.) paid a brief private visit to Carisbrooke and failed to find evidence of the presence of Anopheles or of cases of fever there. The castle is on a dry hill. Gunner X's father was interviewed, and his blood examined with negative result. He stated that he was in India twenty-four years ago, but had no fever either there or on his return. He is a healthy looking man. He said that he is much bitten by gnats sometimes when among the bushes in the grounds. At Carisbrooke midges were found in the garden; probably there are also Culex mosquitos there. Gunner X said he was not aware of having been bitten by any kind of insect either in Carisbrooke or at Portsmouth.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

FEBRUARY 1, 1907.

PART I.

ORIGINAL COMMUNICATIONS.

ART. III.—*Chyliform Ascitic Fluid.* By T. GILLMAN
MOORHEAD, M.D., F.R.C.P.I.; Physician, Royal City of
Dublin Hospital.

CHYLIFORM or pseudo-chylous serous effusions, although not of extreme rarity, have not yet been generally recognised as one of the varieties of inflammatory or passive exudates which may collect within the subcutaneous tissues or serous sacs, and it is, in consequence, of importance that all examples of such should be reported, even though for the present no definite clinical importance can be attached to their occurrence.

The terms chyliform and lactescent are applied to these effusions to indicate their main characteristic—namely, that of milkiess, and at the same time to point out that the milky appearance is not due to the actual presence of chyle, but rather to some other as yet imperfectly known substance. The true chylous effusions in which some morbid alteration or wound of the thoracic duct or its tributaries has allowed an outpouring of fatty substances to take place have long been recognised, but it is only within comparatively recent years that the chyliform type has been described, the earliest

writers on the subject being Letulle in France, and the late Sir George Duffey in Ireland. When first recorded, considerable doubt was thrown on their existence as a distinct type, but the accumulation of evidence within the last twenty years now allows no question to be entertained on the matter.

As far as one can judge from the literature, chyliform effusions are more common in the peritoneal cavity than elsewhere, and the case that I now bring forward is a further evidence of this statement. The notes of it are briefly as follows :—

The patient is a woman, aged forty-seven, who was admitted to the gynæcological wards of the Royal City of Dublin Hospital on the 8th of August last, complaining of abdominal distension and of general swelling of the extremities. She stated, on admission, that she did not remember having had any previous illnesses, and had always been an exceptionally healthy woman till the commencement of her present trouble, some three months previously. She had, however, always been a pretty heavy drinker, and latterly had been constantly indulging to excess.

After physical examination a diagnosis of vascular cirrhosis of the liver was made, and a Talma-Morrison operation was recommended. This operation was performed a few days later, and during its course the diagnosis was confirmed, the liver being found to be enlarged, firm and nodular on the surface, while the other abdominal viscera and the peritoneum were healthy. The effusion present at this time presented the ordinary characters of a serous transudate. Soon after the operation the ascites returned, and the patient was accordingly transferred to the medical wards, where I tapped her on the 29th of August and on the 7th and 17th of September, about 200 ounces of clear yellowish fluid being removed on each occasion. She was again tapped on the 30th of September, and on this occasion it was found that the fluid had become quite milky in appearance, so much so that I at once thought that it was an example of true chylous ascites, and was at first at a loss to account for its appearance. Since then paracentesis abdominis has been performed on eight successive occasions, the fluid each time presenting a milky character. Very little change has taken place in the condition of the patient since I first saw her, except that the fluid does not now accumulate so rapidly as at first, and that there has been marked improve-

ment in her strength and general appearance. The liver still remains palpable, and is quite firm to the touch. The urine, which contains albumen as soon as a large collection of fluid has formed, becomes at once normal after tapping, and only occasionally presents a few hyaline casts. The blood is in almost every respect normal, and the serum is perfectly clear, this last point being of some interest as pointing to the fact that the milkiness is the result of some local condition and not due to any unusual state of the liquor sanguinis. This condition of the serum is indeed what one would expect, as Castaigne has shown that lactescent serum is found only in acute nephritis, in which disease, according to the same observer, it is far from uncommon.

Description of Fluid.—The fluid is distinctly milky in appearance, is of alkaline reaction, and has a sp. gr. of 1012. On standing, a slight amount of coagulation always takes place, and a small clot of fibrin forms, without, however, altering in any way the general appearance. On boiling and adding acetic acid it coagulates, and the resulting filtrate is quite clear and free from albuminous material and from sugar. Centrifuging also fails to produce any change, and the resulting very scanty deposit is composed of red blood cells and a few endothelial cells and neutrophiles, while the fluid examined directly under the microscope does not show any fat globules or granules. The amount of albumen present, as determined by Esbach's method, has varied from 6 to 9 parts per 1000, and the total nitrogen determined by Kjeldhall's method on one occasion was .25 per cent. As ordinary shaking up with ether and caustic potash produced no visible change I asked Professor Werner to estimate the total quantity of fat present, and he has found it to be only .02 per cent., a very low figure, when it is remembered that some chylous effusions may be as rich in fat as ordinary milk. Precipitation of the proteid by saturation with ammonium sulphate leaves a perfectly clear watery-looking fluid, which gives no reaction to the biuret test for peptones, and the same remarks hold good for the fluid obtained after the addition of salicyl-sulphonic acid and filtration when hot.

The above description of this fluid shows it to be identical in character with what has been previously described in some thirty cases, but unfortunately for the present throws no additional light on the subject. Dr. Robert Hutchison.

reporting a case in 1902, states that the turbidity may be due to one of three things—namely, lecithin, a mucoid substance, or a proteid—and from the small amount of phosphorus present in the sample that he analysed came to the conclusion that neither of the first two named substances could be present. That lecithin, however, even in small quantities, may, by combining with albumen, lead to turbidity is referred to by Taylor and Fawcett quoting Joachim, and is possibly the substance present in my case, though the dried proteid residue contained no traces of phosphorus that I can detect. Whether the condition is of any pathological or clinical importance remains a matter for the future, when more numerous cases are reported and their features analysed. Looking through the reports that I have been able to obtain I have noticed that in several of them some chronic fibrous peritonitis was present, and I think that it may ultimately be shown that either nephritis of some variety or chronic peritonitis is an invariable accompaniment of these effusions. In the present case the rapid recurrence of the ascitic fluid and the good general state of the patient leads me to believe that some peritoneal fibrosis must now be present as well as the liver cirrhosis, and that despite the knowledge that no such thickening was observed at the operation three months ago. Such a condition would coincide with Hale White's well-known views on the subject of recurring ascites, and would, I think, facilitate our conception of how the milkiness can arise by the addition to the non-milky liquor sanguinis of inflammatory or breaking down products at the actual site of transudation.

ART. IV.—*The Surgical Aspects of Bronchiectasis, particularly in Children and Young Adults.* By CHARLES GREENE CUMSTON, M.D.; Surgeon to the Floating Hospital for Children, Boston, Mass.

ALTHOUGH the study of inflammatory dilatation of the bronchi has been gone into since it was first taken up in 1818 by Laennec, it was not satisfactorily concluded until

the latter part of the last century. This was due to the little amount of interest and attention which had been shown relative to this pathologic condition, the reasons for which were probably due to the fact that the commencement of bronchiectasis usually eludes the attention of the physician, because he is more particularly engrossed in the symptoms of bronchitis, broncho-pneumonia, foreign bodies in the air passages, and so forth, which generally are the ætiological factors of bronchial dilatation, and which were present a considerable length of time before the process under consideration makes itself evident. Then, again, another difficulty presents itself in making a diagnosis. It is often very difficult, if not to say impossible, to arrive at a correct diagnosis from one examination or at long intervals. Only an extended and careful watching of the patient—and this from day to day—can put the medical man on the right track. Then, again, the study of this affection was influenced in former days simply because the treatment was the same whether the case was one of chronic bronchitis, putrid bronchitis, or bronchiectasis.

Of recent years more attention has been paid to bronchiectasis, and, like many other medical affections, it has entered into the field of modern surgery, and the lung which until recently has been considered as inaccessible to surgery, has finally been placed within its reach. At the present time pulmonary cavities containing purulent fluids are being opened and drained according to the ordinary principles of the treatment for abscess in general, but with more experience it has been found that the prognosis of pneumotomy for various suppurative process in the lungs varies greatly. But operative treatment of tuberculous pulmonary cavities has practically been abandoned, and I believe that at the present time it may be said that the only ulcerative processes in the lungs adapted to surgical interference are those of acute and subacute gangrene. Simple abscess formation does not require surgical inter-

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ference, while in cases of chronic gangrene, bronchiectasis, and tuberculous foci, the prospects of a recovery by means of pneumotomy are poor, on account of the multiple foci of disease usually present in these cases. The operative results in cases of suppurative processes in the lung having proved to have been so inconsistent much more judgment is required at the present time in making a differential diagnosis as well as the topography of the lesion. For a long time bronchiectasis was believed to be an affection of the later years of life, but opinions of eminent writers have varied considerably in this respect. Dieulafoy believes that this process is met with in the middle and advanced ages of life, while Grancher, on the other hand, states that, although it is more frequent in adults, bronchial dilatation should be looked for in children, and in them it is not very infrequent. It would probably be found more frequently if autopsies were more complete and an examination of the principal ramifications of the bronchial tubes were made.

At the present time it is generally admitted, I believe, that bronchiectasis is fairly frequent in childhood, and that not infrequently this process when met with in adults may have originated in the early years of life. Heubner is of the opinion that bronchiectasis in the adult can be traced back to early childhood—usually the result of bronchial dilatation following upon catarrhal pneumonia. It would appear, however, that bronchiectasis in children is easily overlooked. The process occurs as a circumscribed, chronic bronchitis, with exacerbations in the form of recurrent pneumonia, always attacking the same pulmonary lobe. According to Lapin there are two conditions upon which the frequency of bronchiectasis in children depend—namely, the thinness and flexibility of the bronchial tubes as compared to the adult and the variety of ætiological factors. He records a number of necropsies, among which will be found quite a few relating to children. Generally, the reports given are too incomplete, probably because the primary disease of

which bronchiectasis is a complication—such as broncho-pneumonia, measles, whooping-cough, and so forth—frequently cause death before the bronchial dilatation has become marked, and, consequently, is overlooked at autopsy. Besides this, the ectasis may be so gradual that when fully developed the patient has already become an adult. From his researches Lapin concludes that the principal ætiological factor for the development of bronchiectasis is some acute disease of the lungs and bronchi, later on followed by pulmonary sclerosis. He points out that the sclerotic process, whatever may be its cause, and which produces dilatation of the bronchial tubes, results in this process on account of a decrease in the elasticity and degeneration of the muscular structures of the latter. A pneumonia alone, without sclerosis, never produces dilatation of the bronchial tubes, while acute broncho-pneumonia is accompanied by acute bronchiectasis—the latter subsiding with the disappearance of the former process. If the cough be continued the dilatation continues.

Bronchiectasis may also result from pleural adhesions, empyema and chronic bronchitis from the retention of the secretions set up by these processes. Laceration of the bronchial tubes is thought by some authorities to be a cause of dilatation.

In older subjects, on account of stagnation of the sputum, pulmonary degeneration easily results, and then a large cavity may develop.

Before giving the histories of the cases which have been under my personal observation I would like first to discuss those reasons which will lead to a diagnosis of bronchiectasis, particularly in children, and from the very start it should be recalled that the relations of the pleural cavity and lungs differ in children from those in adults, and this is the cause of the many differences in the symptomatology of the affection in the earlier days of life. The clinical histories frequently offer such important points—more particularly in instances of bronchi-

ectasis of long standing—that if one can ascertain the past pathologic history of the patient, one may not infrequently take for granted that bronchiectasis is present, and this with a considerable amount of certainty. In most cases bronchiectasis develops slowly along with the progress of some pathologic process of the respiratory apparatus; whooping-cough appears to play a very important part. In these cases it will usually be learned that the child does not recover properly, and during the further progress of the process generally suffers from cough and expectoration, these symptoms recurring periodically under the influence of certain causes.

There are also cases where the child has been perfectly healthy, other than for relapses of certain diseases—such, for example, as pneumonia; but in other respects the general health is not impaired, or, if so, to a slight extent only. The appetite will be found good, there is a gain in weight, and the child looks perfectly well; in short, his general appearance would lead one to assume that he enjoys perfect health.

Now, unfortunately, from these very facts, the bronchial process is very frequently overlooked, but to the careful examiner there is one primal symptom which points to the existence of this affection. I refer to a shortness of breath, palpitation upon slight exertion, such as going over the stairs, or walking, and possibly a rise of temperature after exercise.

The sputum is of particular importance. It is generally supposed that it is very profuse in this disease, principally containing pus. Microscopically the absence of Koch's bacillus must be proved, as well as the presence of elastic fibres, in order to make a differential diagnosis from ulcerative processes having other origins. The consistency of the sputum is not considered by some as the most important factor in the diagnosis of bronchiectasis, but the manner in which it is expectorated is held to be of importance. The consistency of the matter voided may result in some errors, and it has been pointed out by

Gerhardt that in dilatation of the bronchi one should not be too greatly influenced by the physical properties of the sputum. A profuse, purulent, stratified sputum is also encountered in other diseases, such as putrid bronchitis or an intrapulmonary rupture of an empyema.

The amount of sputum also greatly varies in that it is not always stratified; occasionally only little pus is found in it; while, on the other hand, the presence of elastic fibres may be detected when ulcerative processes complicate the bronchitis. Bronchiectasis can be proved to exist by the sputum only when the patient has been watched for a certain length of time and the manner of expectoration noted. Not infrequently there are long intervals of time when the child is free from expectoration, and when this does occur the discharge of profuse purulent expectoration may be relatively short. The bronchial tubes may also empty themselves in an attack of vomiting, but, generally speaking, there are one or several attacks of expectoration daily. Not infrequently these evacuations have been found in relation to certain circumstances, such as in the morning, when the child was turned in bed, or from some excitement. Von Criegern has related a case of an adult who always had an enormous evacuation when he endeavoured to stoop down, while Quincke has noted that in many cases of bronchiectasis cough is slight during the day and the first half of the night, but that towards morning the patients may expectorate a cupful of purulent sputum. It would appear from this that the secretions must accumulate during the night, and on account of this supposition Quincke applied this therapeutically by causing the patient to be placed flat at the end of the coughing spells at about six o'clock in the morning and at eight o'clock in the evening for two hours, and then later raised the foot of the bed higher. After this treatment was carried out there was a marked decrease in the secretion at the end of from two to four weeks. In this way the secretion can be better emptied from those portions where the mucous membrane is in-

sensible to irritation, and thus congestion and decomposition of the sputum are prevented.

Quinke, in speaking of this procedure, says that it is applicable in cases of sacculated and cylindrical bronchiectasis, particularly so during exacerbations of the process, whereas in diffuse bronchitis there is nothing which is of any help when the general secretion is uniform and pus cavities are present, communicating completely or incompletely with the bronchial system. Thus in perforated pleural empyema or similar conditions where the secretion, on account of its irritating properties, results in a continuous and profuse catarrhal secretion from the bronchial mucosa.

This process, to a certain degree, may aid in verifying the diagnosis if the latter is doubtful. Von Criegern resorted to the Quinke position successfully as an aid to diagnosis, and he considers that with the exception of discovering the local condition by means of the X-ray, it is the most important advance in the diagnosis of bronchiectasis. I would point out, however, that this holds good only when large cavities are present.

As to what these physical examinations accomplish it may be said that Strümpel holds that the entire portion of the thorax in the neighbourhood of an extensive bronchiectasis is retracted and shrunken. Percussion sound is usually dull, or it may be replaced by a dull tympanitic note, while the respiration may lose its vesicular character, becoming blowing and finally bronchial in nature, while usually many moist, medium, and even coarse, râles may be heard when the cavities are large and situated near the thoracic wall, and finally evidences of typical symptoms of cavities may result.

In children, however, these signs on auscultation are not to be found, because, generally speaking, large cavities develop very slowly, and the seat of the bronchiectasis is usually in the lower lobes, and it is only infrequently that large dilatations arise on account of the flexibility of the neighbouring organs, so that the process most fre-

quently represents fissured sacculated dilatations filled with secretions. Otherwise, the physical condition of the patient is far from making evident the presence of several bronchiectatic dilatations.

Reigner has thoroughly recognised the difficulty of diagnosis from the fact that both auscultation and percussion fail to reveal any particular characteristic evidences of bronchiectasis in children, while other writers have expressed similar views.

It is different, however, when a careful clinical observation shows great changeableness in the physical condition, so that the most acute symptoms are of the greatest value for a local diagnosis. Sonorous and coarse râles may mean cavities, especially when bronchial breathing is sometimes heard where it is not usually to be found. Quite frequently a change in the clinical manifestations occurs spontaneously, and is revealed on auscultation. In a cavity which is filled there may be complete dulness and absence of respiratory sounds, but after coughing a dull tympanitic sound is elicited and various modifications of bronchial breathing may be present, accompanied by moist, sonorous râles.

Vierordt calls attention to another symptom—namely, that in deep inspiration a sudden change in the character of the breathing may be found; sonorous rhonchi lose their sonorous pitch, while vesicular breathing becomes bronchial in character. Then, again, the changes taking place between morning and evening, as well as from day to day, are characteristic of this affection. Of course, the reason for this is naturally to be found in the varying conditions of fulness of the bronchial cavities. One is dealing with a change whereby a greater extension of the peri-bronchial process is not always the cause—it being due merely to a simple atelectasis and compression of the surrounding tissues.

Inspection of the thorax need not of necessity show a depression or retraction of the affected side, for this is frequently wanting, and, on the other hand, one may have

a barrel chest in those cases where an empyema has developed. The explanation of this is that bronchiectasis, as a purely local disease, is far from being sufficiently injurious to the body, as, for example, pulmonary tuberculosis. X-ray examination has also been resorted to for diagnostic purposes, particularly for the local diagnosis, but it frequently fails, as do other physical methods of examination. Quincke believes that it is of some value in cases where the manifestations are acute, because it will reveal the presence of both superficial and deeply seated foci, and will more or less differentiate the parts which contain air from those which do not, and it is especially valuable in bringing to light unrecognised multiple cavities. In the cylindrical bronchiectasis it is apt to prove a failure, but it has been found very valuable in those cases where the dilatations were fairly developed to such an extent that von Criegern found that out of a total of twenty-one cases it successfully demonstrated the condition in twenty.

Curving of the finger nails and drumstick fingers are frequent in bronchiectasis, and this symptom should always be looked for.

Now, observation has shown that bronchiectasis is usually unilateral, occurring more frequently on the left than on the right, usually involving the lower lobes, rarely the upper, and much stress has been laid upon this fact by Grancher in making a differential diagnosis between tuberculosis. Von Criegern found that, out of a total of thirty-five cases, sacculated bronchiectasis is more frequent in the lower lobe and on the left side, he finding twenty-five instances where the process was seated in the left, in seven on the right, and in two it was bilateral in the lower lobes. In one case the left lower and upper lobes were involved, while in the cylindrical type of the process the location could not be ascertained.

The treatment of bronchiectasis has been purely symptomatic up to within a short time. Direct action on the diseased structures has been endeavoured to be ob-

tained by inhalations of the oil of turpentine or eucalyptus, carbolic acid, and so forth, but at the best only the foul odour of the sputum has been removed, otherwise there is no curative effect.

Operative treatment by injections or incision and drainage proves to be dangerous. Elevation of the pelvis, placing the patient on the healthy side, and so forth, have not been successful in obtaining the desired result.

Operative treatment was attempted a few years ago, its object being to give exit to the pus and allow the cavities to close up by granulation. The operation is radical in its results, and consists in resection of one or several ribs, after which the pus cavity or cavities are opened and drained. The result, however, cannot be called exactly brilliant, and those who have resorted to this method have usually found that their patients recovered with a permanent fistula. The two principal dangers of this operation are: Firstly, the development of a pneumothorax after the lungs have been opened; and, secondly, the danger of infecting the pleural cavity from the pus. If, however, the pleural layers are adherent these two dangers are naturally avoided, but pleural adhesions cannot always be diagnosticated with certainty before the operation.

The operation has also been carried out in two stages. After the thorax was opened iodine was injected between the pleural layers, which, after several days, resulted in adhesions, and then the purulent cavities were opened; but, leaving aside the unpleasantness of performing two operations, it frequently happened that no adhesions formed after the injection.

In 1897, Bayer was successful in immediately relieving a sudden pneumothorax, giving rise to severe collapse, by grasping the collapsed lung with tooth forceps, and suturing the pulmonary tissue to the costal periosteum. This procedure was resorted to upon several occasions, and in 1903 Garré formulated the conclusions that with proper precautions even a complete pneumo-

thorax is not a complication dangerous to life, while infection of the pleural cavity can be avoided by suturing the lung to the parietal pleura and packing. Personally, I have never seen any reason to fear operative pneumothorax, a point that I have insisted upon at some length in a paper on pulmonary surgery which was published last year in the *St. Paul Medical Journal*.

D'Azincourt found that out of a total of thirty-eight instances of bronchiectasis surgically treated there were twenty-eight recoveries and ten deaths. Borchert operated on five cases of bronchiectic cavities which had arrived at the stage of softening and ulceration—only one of these patients recovering—while Eisendraht found 50 per cent of cures, 15.3 per cent. improvements, and 37.7 per cent. mortality. Garré reports sixty-seven operations, and of these cases twenty-one died immediately after the interference or during the first few weeks. Forty-six cases, or 60 per cent., are reported as cured, but among these, unfortunately, hardly more than 50 per cent. may be considered as cured, because the remaining were discharged with either a fistula, chronic bronchitis, or some remaining evidence of bronchiectasis. Krecke considers operative interference permissible only when a bronchiectic cavity has been surely diagnosticated, but a case of this description operated on by him died. Lenhartz performed four pneumotomies—one, a girl, died shortly after the operation, while the remaining three were considerably improved, only one presenting a fistula. Lichtenauer has reported five cases of simple bronchiectasis and ten the possessors of a putrid bronchiectasis. None of these were cured by operation. Hermann has had a partial recovery in one operation, while of thirty-eight cases reported on by Tuffier twenty died. Schwalbe, out of a total of fifteen cases operated upon, obtained an improvement in eight; only one was cured, while six died. Soulignac performed forty-five pneumotomies, thirteen resulting fatally, twenty-five were improved with fistulæ, while only seven were completely cured. One

successful case in a boy has been reported by Treupel. Out of a total of two hundred and eleven pneumotomies for bronchiectasis seventy-three patients died; in other words, more than 33 per cent.

A comparison with the above results and those obtained by simple resection of the ribs is an impossibility, because as yet there have been too few cases of the latter recorded. It may, however, be said that Lenhartz has reported two cases where the lungs were not incised, and on Quincke's advice only a few ribs were resected, with the result that one patient was cured, while in the second the amount of sputum was greatly diminished.

The reasons why I believe that pneumotomy is a poor procedure in bronchiectasis are: Firstly, there are ordinarily multiple foci of suppuration, the lesions being diffuse and not localised, so that the mere opening of one pus pocket followed by drainage is simply an incomplete procedure. Then, again, when a single focus exists it is often a difficult diagnostic matter to make an exact localisation of the lesion. Secondly, this operation is of absolutely no avail in those cases where the pus has a tendency to be discharged by way of the bronchial tubes; thirdly, after the thoracic cavity has been exposed the pulmonary lesion is often very difficult to reach on account of retraction of the lung; and, lastly, after incision the expansion of the organ and its elasticity in the rigid thoracic wall interferes with the process of repair. It may be said, however, that under certain conditions the surrounding healthy pulmonary parenchyma will, by its elasticity, follow the cicatricial contraction, while if the incision has been made in the lower portion of the lung, the diaphragm frequently aids repair by upward pressure. The condition of affairs is quite different, however, in the upper lobe, because the ribs at this point offer considerable resistance to retraction, and consequently the conditions for wound repair are poor. In the lower lobe the expiratory force of coughing acts more markedly, but even then the secretions can be expressed from the

bronchi of the lower lobe only when the ribs are flexible and yielding, the muscular power good, and the pulmonary parenchyma itself normal; otherwise, the secretions are retained in the chronically inflamed and indurated tissues, and this residual secretion acts as an inflammatory irritant. Naturally, if the patient be placed in the proper position a counteraction to the hypostasis is possible, but nevertheless the hypostatic congestion in the lower lobes is the main obstacle to a reparative process. In the upper lobes the principal obstacle is due to costal rigidity, while in the lower lobe it is, as I have said, hypostatic congestion.

From the above results Quincke came to the conclusion that in the operative treatment of bronchiectasis opening the cavity or cavities, when present in the upper lobes, was of minor importance, but that mobilising the structures surrounding the lung by extensive resection of the ribs was the essential, while in the case of cavities in the lower lobes their incision and drainage is the most important point. Vierordt is of the opinion that this differentiation is impossible to strictly carry out for physical reasons, and again, he also takes into consideration the rather unsuccessful results obtained by drainage of pulmonary cavities. For this reason he decided to try extensive mobilisation of the thoracic wall in all instances where the diagnosis of bronchiectasis of the lower lobes was made. The object to be obtained by this operation is to produce a very marked retraction of the lung by means of extensive costal resection over the diseased area. By this means the walls of the bronchiectatic cavity are brought closely together, while the secretions contained within it are driven to the bronchi, and are then expelled by coughing. This favourable action is increased if constant pressure by properly applied bandages and Quincke's position are also employed.

The results of this treatment have been satisfactory on the whole. Immediately after the operation there has always been noted a rapid decrease in the amount of

expectoration, while the pus also soon diminishes, the children increased in weight and strength, while a physical examination has invariably shown a great improvement at the time of their discharge.

I would point out, however, that there are two difficulties in the operation which should be considered. If the parietal pleura is of delicate structure, and not adherent, it is very easily lacerated, and thence arises the danger of infection and pneumothorax. The dangers of pneumothorax are, I believe, greatly exaggerated by certain operators, and where small tears in the pleura have occurred in the conditions under consideration I am aware of no ill result accruing. Furthermore, in the case of children the ribs regenerate very rapidly when one has taken care to leave the periosteum, and, therefore, it is necessary either to resort to compression over the area of resection immediately at the time of the operation or eventually to remove the periosteum. I would say, however, that Vierordt did not take the latter fact into consideration.

The advantages of this extensive mobilisation of the thoracic walls are, in the first place, the comparative safety of the operation from the fact that the lung remains protected and also the possibility of draining the purulent secretions by way of the natural passages, and last, but not least, the very short time required for the process of repair to be accomplished.

Whether the results obtained are complete and permanent can be ascertained only after a more extended and vast experience, but at any rate the results so far obtained are certainly sufficiently encouraging to continue to resort to this operation in the future, more particularly so on account of its safety as compared with that of pneumotomy. If ordinary medical treatment, carefully applied and continued for some time, remains ineffectual, then resection of the ribs should be seriously considered. My experience in resection of the ribs for bronchiectasis in children is limited to two instances, but on account of

the excellent results obtained I feel that the cases are worthy of record.

CASE I.—A boy, aged eleven and a half years, was referred to me by the late Dr. Allen M. Sumner, of Boston, who at the same time gave me the following notes:—The child had always been well until the age of five, when he had scarlet fever. This was followed by a bronchitis, which was rather tenacious, and lasted for several months. At the age of eight he contracted whooping-cough, since which time he has had a persistent cough, accompanied by profuse expectoration of a thick, greenish sputum, although odourless. Appetite good, and the child apparently has kept his average weight. Occasional night sweats.

Examination revealed a fairly well-developed child of healthy appearance; weight seventy-four pounds. Some dyspnoea upon exercising. The right side of the thorax drags on respiration, and over the entire lower lobe there is diminished resonance. Breath-sounds are diminished, although they are more marked in the posterior axillary line just below the angle of the scapula. Numerous coarse, moist râles. Slight displacement of the heart towards the right. There is continued cough, and expectoration of thick, greenish sputum. Careful search for the tubercle bacillus upon several occasions was negative, and no elastic fibres could be detected.

On account of the tenacity of the cough, in spite of a carefully directed medical treatment, operative interference was decided upon, and on April 13, 1904, under ether, narcosis sub-periosteal resection of five centimetres of the seventh and eighth rib in the posterior axillary line was done.

The after-events were simple—the wound healed by first intention; three weeks after the operation there was still some dulness and many moist râles, but the cough and expectoration had considerably diminished.

In October, 1904, the general condition was excellent, and the amount of sputum voided in twenty-four hours would just about fill the bottom of a cup. The right side of the thorax was somewhat depressed, but from careful examination no distinct dulness could be heard, and vesicular murmur was detected, although somewhat weak. The child had gained six and a half pounds since the operation. The patient has been seen from time to time, and has remained in excellent health.

CASE II.—Female, aged seven years. No family history of tuberculosis. At the age of five and a half years had measles, followed by bronchitis, which has been present almost constantly ever since, and is especially marked in winter. Upon several occasions the child has expectorated blood. The expectoration was thick and yellow, but contained no tubercle bacilli. Occasional night sweats. The child was sent with a diagnosis of bronchiectasis of the left lower lobe.

Upon examination the child was fairly well nourished and healthy looking. Some bronchitis on the right. On the left posteriorly many coarse râles could be detected, and the breathing sounds were bronchitic in character. After exercise the temperature rises a degree.

Under ether seven centimetres of the eighth rib were resected by the sub-periosteal method, the operation being rendered somewhat delicate on account of marked adhesion of the parietal pleura with the ribs, but was finally accomplished without perforation of the former. Two months later the notes read—“Appearance healthy, and since operation the severe cough has disappeared, likewise expectoration. Appetite good. The thoracic cavities symmetrical. The left lung is quite movable, dulness has disappeared, likewise the râles.”

BUNDLE OF HIS.

A MUSCULAR band, discovered by His, Jun., connecting the auricles with the ventricles. It runs posteriorly in the septum of the ventricles, passing into the musculature of the right auricle and its valves.—*Practical Medicine Series*, 1906, Vol. IX., p. 225.

HEART-BLOCK.

INTERRUPTION of transmission of impulses from auricles to ventricles, which may result in increase of intersystolic pause or in independent contractions of auricles and ventricles. It may cause Stokes-Adams' syndrome. *Ætiology* in some cases at least is disease of the bundle of His.—*Ibid.*, p. 226.

APOLLINARIS WATER.

WE understand that at the Exposition Coloniale, Marseilles, the “Grand Prix” has been awarded to this well-known natural table-water. His Majesty the King of Spain has appointed the Apollinaris Co., Ltd., Purveyors of Apollinaris Water under Royal Warrant.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Anglo-Franco-German Alliance—A Guarantee of Peace.
A Suggestion to Mr. Carnegie. By ROBERT STEIN.
“*Volker Europas, wahret eure höchsten Güter!*”—
Wilhelm II. [Reprinted from the “*Advocate of Peace*,” Boston. July, 1905.] 8vo. Pp. 12.

THE still unsolved problem of “Peace or War?” concerns all medical men more closely than most other non-combatant members of the community; not only as intelligent and sympathetic units of the most humane and unselfish of all professions, but as active agents in the endeavour to limit, so far as is possible, the total amount of physical suffering and destruction of life which war inevitably carries in its train; as philanthropic contributors to the progressive physical and mental well-being and improvement of the human race; as philosophical observers of the lives of their fellows, individual and collective, historical and contemporary; as expert specialists in solution of a considerable proportion of the problems which arise in the course of active warfare; and as deservedly trusted advisers in the terrible physical, mental, and moral dangers and difficulties connected with the same in its every stage. “The Real Triumph of Japan” is now acknowledged by the whole world of civilised scientific criticism to have lain even far more in the hands of those who had charge of the prevention of disease and the care of the wounded than of those who utilised the methods of Western strategy and wielded the weapons of Western warfare, with a skill and subtlety which far bettered the instruction of their teachers, and a heroic devotion to their country’s cause which has belittled—not to say disgraced—all historic records of Western patriotism. Our

profession is proud of its Japanese record; "the brightest jewel on her zone" would not, perhaps, be an exaggerated description of its relative brilliancy in its recent setting on a girdle, every available item of whose surface dazzles with jewels of unrivalled brightness and purity. And now, that the phenomenal contest between Russia and Japan has been settled after such terrible sacrifice of human life, and that the civil warfare which rages throughout the territory of the former still shocks—and in all human probability will long continue to shock—the feelings of contemporary civilisation, the question of the possibility of the establishment of a universal and continuous peace rises with special interest before the questioning mental vision of the medical man and the politician. Accordingly, we regard Mr. Stein's contribution to such discussion with the sympathetic eye of the friendly critic. The writer points out that the cause of peace has hitherto been maintained by the terrorising consciousness of the presence of an overwhelming power within available range. "The devil was driven out by Beelzebub, chief of devils. Some one wielding the big stick found himself compelled by self-interest to keep the little fellows quiet. It was so with the famous *Pax Romana*; it is so with the *Pax Britannica* which reigns in India. Universal peace will most likely come about in the same way—by the predominance of one power." The great question which inevitably follows is that of the power. "The valiant son of Count Tolstoi thinks" that if "Russia absorb China and Persia," the natural consequence will necessarily succeed: "the globe will enjoy a *Pax Rossica*." Otto Ammon's classic work "is essentially an elaboration of the thesis that in a healthy society the control belongs by right to the cultured element," the natural corollary of this being that: "If humanity is to remain in a healthy condition the cultured nations must be in control." Mr. Carnegie favours this idea; "to a *Pax Rossica* he prefers a *Pax Celto-Germanica*." Mr. Stein prefers the same, thinking—very naturally—that the former "would be paying rather dear for our whistle."

Mr. Carnegie would entrust the police force of the globe, not to the most despotic and least civilised, but to the freest, most enlightened, and best-intentioned among the powers—those in whose hands the interests of humanity would be safest. And here the author of the pamphlet before us steps to the front with his suggestion. He thinks that if the philanthropic millionaire could so plant out his nobly dispensed dollars as to bring about a *League of Civilisation* in the form of an *Anglo-Franco-German Alliance* the great object might be attained—on the lines of the highest available level of intelligence, and political and social virtue. He suggests by a query contained in a single full and well-rounded sentence a programme which could worthily be drawn up and duly carried through to its fulfilment under the auspicious patronage of the worthy philanthropist. “Suppose Mr. Carnegie were to promise that, in case the Anglo-Franco-German Alliance were realised within a stated period, he would donate to the Universities of London, Paris, and Berlin \$10,000,000 each, to establish in each of these cities a Carnegie Institution like the one in Washington, the world’s peace is surely worth \$30,000,000, the price of five battleships—what would be the result?” And he very naïvely indicates how the refusal of the various governments referred to would place the learned public of each of these three countries—collectively and individually—in a position strictly comparable to the ‘condition of Tantalus.’ Uneasy brains would be very likely, indeed, under such Arcadian attractions and disappointed Utopian prospects and possibilities to unite in the production of opinionative pressure which might prove volcanic, and call for the political application of an appropriate safety-valve. Would not the *if* be the nightly pillow of every impecunious savant? Would he not be urged by a torturing motive to ascertain the exact value of the objections? And if the objections proved unsubstantial (and Nature would be perverse indeed if she had decreed the interests of the highest types of mankind to be irreconcilable), is it not certain that a constant

pressure would be exerted on public opinion?" These questions, so clearly outlined by Mr. Stein, will, we feel pretty sure, stimulate the sympathies of the best intellects among our readers, even when the latter take no interest whatever in the purely political arrangements—or disarrangements—of international indentures. We would very much like indeed to have Mr. Stein's suggestion adopted by Mr. Carnegie, accepted by the nations, and carried out to the letter by their various executives. Such an event would surely mark the dawn of a new and gloriously brilliant era in the history of cosmopolitan progress—mental and physical, scientific, material, and moral. For the present we can but earnestly pray—with what modicum of sincere hope we can bring to bear on our orisons—that the fulfilment of some such prophetic vision may be realised within the limits of our own generation.

A Manual of Midwifery. By THOMAS WATTS EDEN, M.D., C.M., F.R.C.P. Lond.; Assistant Obstetric Physician and Lecturer on Midwifery, Charing Cross Hospital; Physician to Out-Patients, Queen Charlotte's Lying-in-Hospital; Physician to In-Patients, Chelsea Hospital for Women; Examiner in Midwifery and Diseases of Women at the Conjoint Board of the Royal Colleges, &c., &c. Pp. viii + 518. With 26 Plates and 233 Illustrations. London: J. & A. Churchill.

DR. EDEN is well known to the medical profession as a pathologist who has devoted a considerable amount of time to the elucidation of various problems associated with gynaecological and obstetrical pathology. He is, we are inclined to think, less known as a practical obstetrician, although the posts he holds and has held must have enabled him to acquire sound practical knowledge. His book, then, which aims at providing everything essential, both in theory and practice, is bound to excite considerable interest. It may not be unprofitable to divide our notice of it into two parts—the first dealing with its theoretical portions, the other with its practical teaching.

The theoretical portions of the book—i.e., those portions which deal with such subjects as ovulation, embryology, the pathology of the various diseases of pregnancy, and so forth—appear to us to be extremely good. Perhaps in some places they are so extensive as to make one think that in a book of this size undue relative importance is attached to them. The book, as stated in the preface, is not for the use of specialists, but rather as a guide to that practical and adequate knowledge of midwifery which is essential to the “student who desires to satisfy his examiners and to the practitioner whose early years of practice are so largely occupied with obstetric work.” With this object in view we think that Dr. Eden has given an undue share of space to theoretical matters, and we fear that this is done at the expense of practical matters. After all, however, it is what we should expect to find in a book written by an expert pathologist.

To give an example of what we mean:—Although “such subjects as the anatomy of the pelvic organs and mammary glands have been omitted, and the anatomy of the bony pelvis and pelvic floor has been considered only in connection with the process of labour,” we find that in the first two parts, in which are discussed normal and abnormal pregnancy, while ninety-six pages are devoted to theory, only fifty-nine pages are given to clinical features, diagnosis, and treatment. This does not seem to be a fair allotment of space in a book of this kind, and even the marked excellence of the pathological descriptions does not compensate for the want of practice. Moreover, since Dr. Eden himself is one of the examiners whom students “desire to satisfy,” the obvious result will be that the latter will pay a disproportionate amount of attention to theoretical subjects.

We cannot say that we have formed as high an opinion of the practical portion of the book as of the theoretical portion. To put the matter in a nutshell, Dr. Eden does not appear to us to have devoted himself as much to the practical as to the scientific side of his profession, and the result is obvious in his writings. We should have thought that the very first thing to suggest itself to a man who, like Dr. Eden, desires to carry on at the same time pathological research and obstetrical

practice would be the necessity for adopting every means of preventing the carrying of infection on his hands, and that, as a result, he would be an ardent supporter of the universal use of rubber gloves. Yet, on reading his description of the method of sterilising the hands which he recommends, we find that he only considers gloves necessary "if the hands have been recently infected by contact with a septic midwifery case or suppurating wound." Surely a pathologist, above all people, should never examine a woman in labour without gloves, and surely also he should be the first to recognise the importance of students and general practitioners, for whom he is writing, doing likewise.

Twenty-four pages are devoted to extra-uterine pregnancy, yet, when we come to the treatment, the reader is told that it belongs to the domain of gynaecology, and it is dismissed in twenty-nine lines. Similarly, fifteen pages are devoted to abortion and miscarriage, of which four and a half (including four quarter-page drawings) are given to the treatment.

Whilst referring to this chapter, we may note that the writer considers "that rise of temperature during a miscarriage does not necessarily imply infection; it may be due simply to exhaustion and mental distress." This does not seem to us to be wise teaching.

The management of the third stage of labour is discussed in about a page and three-quarters of type. The author considers that the rise of the fundus, which is said to occur when the placenta leaves the uterus, is difficult to demonstrate. We should have thought it was one of the most obvious of the various signs by which placental expulsion from the uterus into the vagina is determined.

The management of face presentation is dismissed in a page and a quarter, and the consideration of the entire subject of brow presentation occupies three-quarters of a page. We fear that the youthful practitioner, who meets for the first time a case of the latter presentation, will not thank Dr. Eden for the information he has given him.

The discussion of the management of breech presentation is somewhat fuller. The author is, however, in error in considering that Smellie did not recommend the use of an external

hand, with the fingers over the shoulders in addition to the internal use of the fingers in the infant's mouth, when extracting the after-coming head. (*Vide* New Sydenham Society's Edition, Vol. III., case 303.)

The management of transverse presentation occupies about half a page. This, however, is not so serious a matter, as further reference is made to the subject when discussing obstetrical operations.

The illustration of the use of the *knee-elbow* position in prolapse of the cord demonstrates clearly how useless this position is. The *knee-chest* position must be adopted in such cases if any practical results are to be obtained.

The sections on hæmorrhages are poor, because, save in the case of *post-partum* hæmorrhage, the reader is not distinctly told what to do. Considering for whom the book is written, this is a serious omission. It is right and proper to describe different methods, but, at the same time, clear instructions should be given as to the line of treatment recommended by the author. In discussing *post-partum* hæmorrhage two statements are made which, we fear, will not be accepted by practical obstetricians. The first is that "there is no doubt that plugging is inferior to bi-manual compression (of the uterus) in cases of intractable inertia." The second is that such methods as transfusion of saline solution "have, of course, rendered unnecessary the procedure formerly described as auto-transfusion—i.e., bandaging of the legs and arms in order to keep the greatest possible amount of blood circulating in the head and trunk." There are a number of such little didactic sentences through the book, and they do not always possess the merit of being correct.

Space prevents us from writing more. We may sum up our opinion in a few words. Dr. Eden is an expert pathologist who is wasted as a teacher of practical obstetrics. He has started with the false premiss that there is an urgent need for a new book, and from it he has been led into bringing out a book which is not quite required. On the other hand, there is a crying need for a modern handbook or text-book on obstetrical pathology, and we know no man who is as capable of writing it as he is. It is then a thousand pities that he did

not set himself to write such a work, whose success would have been certain.

A final word must be said on the illustrations. The plates are particularly fine, but, again, they are more suited for a work on pathology. Most of the illustrations in the text are also good, though a few might be re-drawn in a more taking style.

The Treatment of Syphilis. By ALFRED FOURNIER, Professor at the Faculty of Medicine; Member of the Academy of Medicine; Physician to the St. Louis Hospital, Paris. English Translation of the Second Edition (Revised and Enlarged), by C. F. MARSHALL, M.D., F.R.C.S.; late Assistant Surgeon to the Hospital for Diseases of the Skin, Blackfriars, London; formerly Resident Medical Officer to the London Lock Hospital. London: Rebman, Ltd. 1906. Royal 8vo. Pp. 271. Also bound in the same volume, *The Prophylaxis of Syphilis.* By PROFESSOR ALFRED FOURNIER, and translated by C. F. MARSHALL, M.D., F.R.C.S. Pp. 219.

A WORK bearing upon its title-page the names of such distinguished authorities on syphilis as those of Fournier and Marshall can only merit our entire confidence and praise. And we may here congratulate them both on the exceptionally able manner in which they have fulfilled their respective tasks.

Professor Fournier's work deals exclusively with the treatment of syphilis; it contains no allusions to the diagnosis and symptoms of this disease. The work is obviously not intended as a text for students, but for men conversant with the subject. He pertinently points out that the ordinary medical practitioner is allowed to obtain his diplomas and enter upon the practice of his profession with a lamentably inadequate knowledge of syphilis, and he suggests that students should be required to attend a special course of lectures on venereal diseases, and have their knowledge of the subject tested by examination. In hospital practice the lesions of syphilis are all that they see

treated and not the disease itself. We fully endorse Professor Fournier's dictum that "it is not only necessary to obliterate specific lesions, but also to energetically treat the chronic diathesis. He reviews the numerous vexed questions that occupy the minds of experts, including the more or less heterodox theories of irreconcilables, and also all the various treatments which have from time to time been exploited as of therapeutical value. He discusses each question in a masterly and unbiassed manner, all the pros and cons are dealt with in their different phases, and statistics, compiled from his own practice as well as that of others, are adduced in several instances to illustrate and support his views. In fact, he makes an exhaustive analysis of each question, and sums up his conclusions in a definite final judgment, leaving no possible doubt as to his conviction. This is one of the great attractions of his work. We feel in every line we read that he has taken us into his confidence, and that he is, benevolently, as it were, striving to impart to us the results of his experience after upwards of forty years devoted to the systematic study of the subject. As a pupil and colleague of Ricord he naturally refers to his teachings, and thus the value of the volume is doubly enhanced.

As some practitioners have argued that syphilis is best left alone, as treatment, they argue, only delays and predisposes to more serious secondaries and tertiary lesions, out of a number of 2,896 subjects affected with tertiary syphilis 78 per cent. had not been treated at all, 19 per cent. had received moderate treatment, and 3 per cent. only had been properly treated. And of a number of 1,664 cases of tertiary syphilis Fournier found that 1,424 followed benign or mild secondaries. He, therefore, concludes that whether the early manifestations of syphilis are benign or not they should be treated in the ordinary way. He considers cauterisation of a chancre absolutely powerless to prevent constitutional infection. Excision might possibly do so, but he has never seen a case in which it did.

Having referred to the different drugs used in the treat-

ment of syphilis he confines himself to mercurial and iodide medication. Of these he considers the former as being the remedy *par excellence*—the possible evil effects of which he divides into four classes:—1. Salivation. 2. Gastro-intestinal disorders. 3. Disorders of nutrition. 4. Cutaneous lesions.

1. Salivating effects are less likely to follow the use of sublimate than that of the proto-iodide, and are most apt to follow treatment by massive injections. 2. The gastro-intestinal effects are avoided by the intermittent treatment adopted by him, and, if necessary, adding some such corrective as extract of thebaia, as in Ricord's and Dupuytren's pills, or *à fortiori* by ordinary inunctions. 3. Fournier maintains that the statement that toxic chloro-anæmia with emaciation and deterioration of the constitution and consequent cachexia by destroying the elements of the blood are much exaggerated, and, furthermore, that such unfavourable results arise only when mercury is administered either in too large doses or too continuously even in moderate doses. On the other hand, he quotes the experimental results of Martineau, Galliard, Stoukovenoff and Jelenew, who found that the red corpuscles increased in number and the hæmoglobin in amount in the presence of physiological doses prescribed for short periods (four weeks). 4. Of the cutaneous eruptions he finds that desquamative polymorphous erythema is the most common form. In a rarer type the eruption is general, and the skin red, swollen and tense, large eroded patches covered with blisters, and resembling burns in their appearance and odour, necessitating the cessation of mercurial treatment.

As some physicians have absolutely denied that mercury exerts any beneficial effect on syphilis, he refers to the everyday experience of obvious cures. For instance, he says, a papulo-squamous syphilide takes months to disappear *sponte sua*, but will be dispersed by mercury in two or three weeks. Again, a syphilitic testicle may be saved from sclerosis or functional death, and a heredo-

syphilitic infant practically resuscitated by the use of mercury. Concerning the *preventive action* of mercury on the tertiary period he presents the incontrovertible evidence of one hundred cases of cerebral syphilis, of which only 5 per cent. were subjects who had received thorough treatment with this drug. And out of a table of 1,703 cases of tertiary syphilis of different kinds only 59 occurred after what might be called sufficient treatment.

He discusses the five methods of administering mercury: (1) ingestion, (2) inunction, (3) fumigation, (4) injection, (5) intravenous injection. With the exception of the last, which he utterly condemns and does not practise, he is "guided in his choice of one or other of the former by considerations based on the clinical indications relative to the peculiarities of the patient and the quality of the disease." In the inunction method he recommends one drachm by weight of an ointment composed of equal parts of mercury and lanoline to be used daily at bed-time. Personally we agree with him that this is a more efficacious plan than that recommended by many surgeons—i.e., inunctions first thing in the morning, their argument being that the skin is warmer and the pores open at this time, whereas our opinion is that the reverse conditions exist. The patient immediately becomes chilled by the exposure, whilst by using his inunction at bed-time he has the advantage of the "warm skin and open pores" for eight hours or so, which our opponents to this point of view claim to obtain temporarily during morning rubbings. There are other obvious advantages of evening rubbings—one of which being, as recommended by Fournier, that the part may be covered with wool or moistened lint bandaged on. He of course advises that such hairy areas as the axilla should be avoided, and lays stress on the importance of the rubbings being carried out to dryness. The course of rubbings should be continued for two or three weeks, and then renewed after an interval. In our experience we find that two rubbings a week are ample in the majority of cases, and there is

infinitely less danger of complications arising than when drachm doses are used daily. We believe that twenty inunctions constitute a very fair first course of treatment. Cases of tertiary sclerosing glossitis which are usually rebellious to the usual form of treatment (ingestion) Fournier finds will more readily yield to inunctions. He also claims for this method that it rarely affects the digestive organs, and also that it leaves the stomach free for ingestion of other remedies. As in the mixed treatment of mercury with iodide of potassium, when both are given by the mouth there is a risk of setting up gastric intolerance, and though this complication may not be frequently met with in this country, the exemption is accounted for, we have no doubt, by the fact that the dose of iodide of potassium is seldom used in anything like the quantities prescribed on the Continent, where up to 600 grs. have been administered in a day. We rather tend to the other extreme, and hesitate unduly to increase the dose in suitable ratio to the severity of the lesions present. If we did we would appreciate Fournier's last-named claim for the advantage of treatment by mercurial inunctions. In summing up his opinion of this method Fournier states, "That, taken as a conditional method in severe syphilis and for some special lesions, it constitutes an excellent mode of treatment, but that it does not realise the conditions necessary to make it a routine method in the treatment of the disease."

Fumigations of mercury benefit certain forms of secondary syphilides (vegetating mucous patches, ecthyma, &c.), yet it is quite unsuitable for prolonged treatment. The hypodermic injection may be carried out by one of two methods—(1) By daily injections of small doses, (2) by weekly injections of large doses. Describing the technique of injections Fournier emphasises the importance of selecting unirritating preparations, of strict antisepsis, of chemically pure and sterile drugs, of deep or intramuscular injections, of selecting muscular regions—as the retro-trochanteric fossa, the lumbar muscles, the buttocks (of these he prefers the first-named); he avoids

inserting the needle into the lower third and central region of the buttocks, and directs the needle outwards in this locality. Gaillat's point is suitable on account of the absence of vessels and nerves in its area. It is found at the intersection of two imaginary lines, one horizontal and two fingers' breadth above the great trochanter, the other vertical at the junction of the inner and middle third of the buttock. He considers it a wise precaution to first insert the needle, observing if any blood comes through it, and if not, to then complete the injection. There is no great harm in doing this, though personally we prefer having our needle firmly fixed on to the syringe, and to have satisfied ourselves that whatever cream we use is running smoothly, not, as frequently happens, having a tendency to block and stick in the needle. The injection should be made slowly, and, on withdrawal of the syringe, light massage of the region should be exercised. Lastly, one is directed to vary the site of injection in rotation. We are satisfied that the technique taught by Henry FitzGibbon is more secure against accidents than that of any other plan with which we are acquainted. The operation is simple, and any differences in technique can only be small, but the consequences of error in manipulation may lead to disastrous sequelæ—large abscesses and sloughs, including the muscles of the part, have been recorded. FitzGibbon uses Lambkin's cream, which is specially prepared for him by the chemist, and is dispensed in small capillary glass tubes which he has devised for the purpose. They are known on the market as "Jectols" (Messrs. Price & Co., Dublin). Thus he has sterile material to work with. He, if not the first, was one of the first to emphasise the importance of "continued light massage of the part for several minutes after injection." Finally he hermetically seals the puncture wound with collodion or tr. benzoini Co. The patient's skin and the instruments are thoroughly disinfected, and, as a final precaution in this respect, he washes the skin and the syringe with absolute alcohol. By this means his patients are spared nodosities,

abscesses, lameness, &c., which too frequently occur in cases where his nicety of detail is not practised. We have never had even nodosity arise causing any inconvenience since following his example in technique. Fournier, in making his selection from a list of mercurial preparations used for injection, and having regard to their relative power, would unhesitatingly place calomel in the first rank as a remedy which at present is, he says, unsurpassed. Grey oil he places second, and biniodide a long way afterwards in the third rank. In daily injections he uses 1-2 centigrammes of the sublimate, and in weekly injections 5 centigrammes of calomel—5-8 of which constitute a course. In these latter circumstances sublimed calomel, 50 centigrammes, is incorporated with 10 grammes of sterilised olive oil, one c.c. of which contains nearly 5 centigrammes of calomel (5-7th grain.) He reduces this dose to 3 centigrammes for women. Of injections he considers calomel the most energetic and most certain agent. It sometimes realises the most extraordinary effects in cases of phagedænic chancre, malignant syphilis, tubercular syphilides, phagedæna due to heredo-syphilis, tertiary glossitis, gummatous laryngitis, chronic palmar and plantar syphilides, dipapillating glossitis, &c., but it has not a persistent action, recurrences being frequent. In summing up the adaptability of calomel injections he states, "That as a temporary and provisional medication directed against a manifestation or outbreak of syphilis, which requires energetic treatment, he accepts the method of calomel injections. But as a routine, habitual, preventive or systematic medication, continued during the whole treatment of syphilis, he is a convinced and militant opponent." He concurs in the trichotomous formula, "For ordinary syphilis treatment by ingestion, for more severe syphilis treatment by inunction, for the most severe syphilis treatment by injections, especially calomel. Grey oil he considered only second to calomel, and though not to be compared to the latter as regards therapeutic intensity, yet as to tolerance it is infinitely superior.

The method of ingestion he describes as the true method of treatment, and having discussed the several preparations of mercury he selects the protoiodide and sublimate as the "only two"—"the pillars of mercurial medication by ingestion." Contrasting these two preparations he states that the sublimate has little tendency to affect the mouth unduly though apt to disagree with the stomach. Whereas with the protoiodide the reverse holds good. He prefers the protoiodide because more intense effects can be produced by it owing to the greater range of its dose—that is to say, that its average daily dose of 7 to 8 centigrammes may be increased to 15 or 20 centigrammes without seriously inconveniencing the stomach, whereas the sublimate in any quantity greater than 3 to 4 centigrammes is apt to cause gastric intolerance. Again, in the early stages of syphilis he prefers the protoiodide, and considers the sublimate more suitable in the later stages. The sublimate should be prescribed in free solution, the protoiodide being insoluble in pills, and should be taken before ordinary meals. The personal dose—that is, the one most suitable to each individual patient—should be sought for and prescribed. He also regulates the dose to the particular form of lesion to be treated—thus in roseola a small dose will soon relieve it, which given in cerebral syphilis would have no effect.

Potassium iodide, he reminds us, was first introduced in the treatment of syphilis by Wallace, who also showed its energetic action on syphilis. This is, may we say, a concession, inasmuch as it is the only reference made to Irish practitioners contained in the book (in the second book he mentions Colles's Law, and the translator alludes to Lambkin). Carmichael and Acton—only to mention two names—are not alluded to. Both wrote standard works on syphilis. To Ricord, *of course*, is due the real credit of placing potassium iodide in the position it now holds. Professor Fournier regards potassium iodide as a marvellous remedy, sometimes working miracles, especially on gummatous syphilomas of the skin or mucous membranes, especially those of the palate and pharynx.

Ditto with exostoses, hyperostoses, tertiary lesions of the tongue and muscles, visceral infiltrations. It resolves tumours; testicles as large as fists and as hard as wood are cured. "Pseudo-phthisical subjects, with apparently one foot in the grave, are resuscitated by iodide." Surely this sentence contains a warning note that we should hesitate before concluding that all cases prescribing signs of pulmonary mischief are tubercular in origin. How often we diagnosticate from such a condition pulmonary tuberculosis only to have our opinion again and again disproved by microscopical examination of the sputum and *sometimes* by the ultimate history of the case. We emphasise the word "*sometimes*," for frequently active tuberculosis is developed on what is supposed to have been incipient phthisis. Surely it is at least conceivable that the earlier condition may have been of a syphilitic nature on which the tubercular complaint supervened. An illustrative case is recorded by Fournier in the work under consideration (the full history of which appears in the *Union Médicale*, 1878). "A young woman entered the Lourcine Hospital with terrible phagedæna of the foot. Pale, emaciated, and apparently in the last stage of decline, *and as she had a large cavity at one apex* she was regarded as both syphilitic and tubercular. No one would have given her more than a few weeks to live. However, to satisfy his conscience rather than with any hope of any therapeutic result, he put her on iodide and mercurial inunction. But, to his astonishment, she was literally transformed, both the cavity in the apex and the phagedæna of the foot healing up. In four months later this moribund patient had become a stout, robust woman, having regained her former health; and, instead of leaving the hospital by the small door of the mortuary, she walked out of the front door in a flourishing condition."

The three methods of administering potassium iodide, are ingestion, enema, and injection. The last is indicated only in cases of cerebral syphilis with loss of consciousness and relaxation of the sphincters; enemata for those

rare cases which cannot tolerate iodide by the mouth (30 to 60 grains in 8 oz. of water). And when prescribed in the ordinary way by ingestion he recommends that it be given with syrup of bitter oranges freely diluted with water, though if patients prefer to take it in beer they may do so. The amount prescribed by Fournier is 15 grains the first evening, increased to 30 grains daily for the following week, 45 grains for the next fortnight or so, and 60 grains during the last few days of the month. He does not believe that the iodide can replace mercury, rather regarding it as a cure for special lesions than as an eradicator of the diathesis. It is in the tertiary period that iodide of potassium is the fundamental remedy, but when the specific lesion is cured mercury should again be employed, as it is by it we endeavour to prevent relapses. Iodide of potassium and mercury are the complement of each other, and as mercury is used in all periods of the disease, if not necessarily for all lesions, so is potassium iodide likewise employed. During the first year of syphilis Fournier orders potassium iodide to be taken during four periods, each of four weeks' duration. In the second year three similar periods, and for the third year two periods. Iodide of potassium is specially indicated in secondary headache, neuralgic pains, periostitis, ostealgia, arthralgia, myosalgia, early malignant syphilis characterised by gummatous infiltration, and in all cases where there is an idiosyncrasy, debility, cachexia, tubercle, and mercury may not be well tolerated. The mixed treatment of mercury and iodide is specially indicated in cases of dry tubercular syphilide, and unclassified lesions which occupy the borderland between the secondary and tertiary periods—namely, iritis, choroiditis, sarcocele, perionyxis, ulcero-crustaceous syphilides, periostitis, &c. In cases threatening the life of an organ or of the individual mixed treatment is not an open question but a necessity. He prefers the drugs being given separately.

Fournier devotes a chapter of his book to "serum treatment," in which he conveys his belief that there are possibilities of good results being obtained by this

method of treatment in the future, though he recognises that at present it is merely speculative.

Syphilis, he affirms, should be energetically treated as soon as it has been definitely diagnosticated to one's own satisfaction—not waiting for the patient to be convinced of his having the disease by the eruptions of a rash or any other obvious sign, as alopecia, &c. And treatment should be continued for four or five years, and later as occasion may arise. He utterly condemns the "opportunistic method," as advocated by Diday, which, during quiescent intervals, leaves the patient free of treatment. Fournier's ideal treatment is intermittent and continued over several years, lesions or no lesions. It is the diathesis he attacks, not merely its obvious or temporary manifestations. He urges the importance of auxiliary treatment—hygienic, moral, medicinal, dietetic, &c.

In alluding to the recognised frequency with which this disease affects the cerebro-spinal syphilis, and referring to their prognosis, he rightly says that in general paralysis failure to cure occurs in every case. Yet we remember reading a remarkable article in the *British Medical Journal*, 1905, by Dr. Neil M'Hardy, assistant medical officer to an asylum in England, who recorded the fact that two patients afflicted with general paralysis were apparently cured by "urotropine," and were discharged from the institution.

In the appended book on "The Prophylaxis of Syphilis" Professor Fournier urges the necessity for State legislation and medical inspection of registered prostitutes. As in this country, at least, all medical men are unanimous on the necessity for such legislative measures, and are equally conversant with the "obvious" need of prophylaxis, no matter how effected, against this dreadful disease, we regret that the publishers decided upon uniting both of Fournier's works in one volume, thus causing unnecessary bulk and expense. We do not believe that the practitioner needs to be reminded of the importance of prophylaxis, and if he did he does not require for the purpose so permanent a form of reminder as a good-

sized text-book. Surely it is inconvenient to have to hold in one's hand some extra 220 royal 8vo pages of irrelevant matter on every occasion that one desires to refer to Fournier's "Treatment of Syphilis." We fear that this disadvantage will prejudice the circulation of a work (Fournier's "Treatment of Syphilis") which we should like to see in every medical practitioner's library, and which in itself would indirectly constitute a very real source of prophylaxis.

Clinical Lectures on Diseases of the Lungs. By JAMES A. LINDSAY, M.D., F.R.C.P. (Lond.); M.A.; Professor of Medicine, Queen's College, Belfast. Second Edition, Enlarged and Revised. London: Baillière, Tindall & Cox. 1906. Demy 8vo. Pp. x + 508.

THIS, the second edition of this volume, differs from the first in being entirely devoted to diseases of the lungs, the chapters on heart disease which were included in the previous edition being now omitted, and several new chapters on pulmonary conditions being added.

As the author points out in his preface, "these lectures are intended to be supplementary to, rather than a substitute for, the ordinary text-books," and in accordance with this intention pathological questions are not dealt with, and "theoretic completeness of description has not even been contemplated." Remembering these limitations, the book may be regarded as a good clinical manual, but the treatment of the various diseases is most unequal—thus 160 pages are devoted to pulmonary tuberculosis, while the treatment of pneumothorax is dismissed in a little over a page, in which, moreover, the author quotes other authorities and refrains from giving any personal opinion on methods of treatment which are, no doubt, matters of discussion, but on which a reader in search for advice in a critical case would like to find some statement of the writer's practice.

Again, no mention whatsoever is made of acute suffocative pulmonary œdema, unless, indeed, we regard the reference to albuminous expectoration under the complications of paracentesis thoracis as referring to that condition; but as the

disease, though rare, requires knowledge and skill when it is encountered, we regard all omission of mention of it as a mistake.

However, a book must be judged by its contents, and we may at once say that what the author has done is done well. The opening chapters on physical diagnosis, on general pulmonary symptoms, and on the clinical examination of the sputum are thorough and reliable. Stress is laid on a common-sense application of physical principles in chest diagnosis, and especially in interpreting such phenomena as tubular breathing, râles and rhonchi, and the varying types of percussion note, while the introduction of a section on X-ray diagnosis proves that the author is up-to-date and alive to the occasional advantages of having resource to that means of examination. Such signs as those described by Litten and Baccelli are mentioned, but no importance is placed upon them, and, in regard to the latter, the author expresses the now generally received opinion that it is valueless.

The remainder of the book deals seriatim with the diseases of the pleura and lung, special attention being paid under each heading to the problems of differential diagnosis and the treatment of cases. A specially good account of the treatment of pneumonia is given, but in it we find no mention of the use of guaiacol carbonate—whether because the author has never used it or thinks it useless we are unable, of course, to conclude. The sections also on the treatment of acute and chronic bronchitis are good, but might be a little more detailed with advantage.

On the whole, however, we can recommend the work, and feel sure that it will maintain the popularity enjoyed by the previous edition.

*Scott's Doctor's Diary and Emergency Note Book for 1907 ;
and Nurse's Diary and Emergency Note Book for 1907.*
London : Scott & Bowne, The Chandos Press.

THE enterprising firm, with which the well-known "Scott's Emulsion" is connected, has placed the medical profession and the nurse's calling alike under an obligation by issuing these neat, compact and useful diaries. Both contain

valuable information—the Nurse's Diary more than the Doctor's! Each book contains a coupon-insurance ticket, which should be signed in ink by the owner, and a pencil.

There is an ingenious arrangement by which the latter is prevented falling out of the book. This is a rubber band, which holds the pencil tightly while the book is closed. On opening the leaves of the diary, the pencil can be removed from its case with ease.

The diary includes a calendar for three years—1906, 1907 and 1908, and an additional month for daily entries—namely, January, 1908. It is of very convenient size, is beautifully bound, and carries on its leather cover a scale of four inches and of ten centimetres.

Statistical Tables of the Patients under Treatment in the Wards of St. Bartholomew's Hospital during 1905. By the Medical Registrars, P. HORTON-SMITH HARTLEY, M.V.O., M.D.; T. J. HORDER, M.D., F.R.C.P.; and the Surgical Registrar, G. E. GASK, F.R.C.S. London: Charles Skipper and East. 1906.

STATISTICAL tables, as a rule, offer proverbially limited attractions to the ordinary reader—even when the latter happens to be possessed of the most advanced attainments of a scientific critical reviewer. They are, nevertheless, exceedingly useful documents for occasional consultation; and if any such can claim the possession of a peculiar magnetic attraction, those which record the results obtained within the walls of such an institution as St. Bartholomew's Hospital will surely be among the most likely when offered to the perusal of a medical man who is devoted to his truly philanthropic profession. The name of Percival Pott alone is sufficient to throw a never-fading corona of illuminating consecration around the walls of this great institution, and to endear it permanently to the mind of every true surgeon. "Pott's fracture," "Pott's apparatus" (for treatment of the same), "Pott's position," "Pott's phyma," "Pott's bloody tumour," "Pott's puffy tumour," "Pott's cancer," "Pott's caries," have been phrases familiar as household words in

the surgical wards of all our Dublin hospitals and the surgical lecture-rooms of our schools down through the whole of the past century, and are more than likely to remain so. The friendly—and mutually respecting—waves of emulation which emanated from the inspired sources of “Bart’s” Percival Pott and our own Richard Dease, in connection with their respective modes of treatment of wounds of the scalp and fractures of the cranial vault, contributed to the special impression made by the illuminating genius of St. Bartholomew’s great surgeon on the subsequent teaching and practice of Dublin surgery. Accordingly, we always turn with special interest, and, we must add, with special expectation, to every new record of the practice of that great, and continuously progressive, surgical institution. Nor is its medicine less satisfactorily illuminating—both in theory and practice. Of the 7,005 patients treated during the past year, 618 (only) paid the final debt of Nature within its wards—a gratifying record, when we remember the necessarily enormous proportion of serious disease and deadly injury among the total number of admissions.

Following the statistical tables proper in this little volume is an “Appendix” (pages 144-172) which gives what we may, without exaggeration, describe as the concentrated essence of the information derived from expert examination of the most interesting of the whole vast series of cases. We cordially congratulate the compilers on the way in which they have carried out their laborious task, and ourselves on the attainment of an important source of easy enlightenment.

Minor Maladies and their Treatment. By LEONARD WILLIAMS, M.D., M.R.C.P.; Physician to the French Hospital; Assistant Physician to the Metropolitan Hospital; late Assistant Physician to the German Hospital; and Hon. Medical Officer to the Sidmouth Cottage Hospital. London: Baillière, Tindall & Cox. 1906. Cr. 8vo. Pp. x + 383.

ONE of our most brilliant political orators has recently observed—in the course of a non-political speech—that the

making of new (educational) books in the present day often merely meant cutting up the large old books into small new ones, or used words which conveyed that idea to the present reviewer. It is but right to add that, on the occasion referred to, Mr. Wyndham was probably thinking of any class of latter-day manual rather than medical.

That there is a great deal of truth in the insinuation conveyed in the above paragraph concerning the peptonised preparations usually offered to the mental palate of the rising generation of this still new century of ours is a fact placed above the level of disproof—even in the case of our boasted advances in medicine and surgery. Still we must claim for *our* book-makers an even goodlier proportion of “new knowledge” than is to be found in the majority of the scientific manuals of the period. Every one of our readers, who has had a quarter of a century’s experience of the teaching and the practice of medicine and surgery, is fully conscious of the wholly different hue of our scientific atmosphere of to-day as compared with that of five-and-twenty years ago. The murky hue of the overshadowing pathological atmosphere of that day—abounding in the mysterious, and absolutely undeciphered, agents to whose presence disease was always due, and on whose mobility and motility its transmission wholly depended—has within this period been penetrated in every direction by the dazzling searchlights brought to bear thereon by the giant pioneers of bacteriological investigation, and their indefatigable apostles and devoted pupils. The tints of the universal canopy which were then uniformly saturnine and—mentally and morally—depressing, are now radiant in every direction with the roseate hue of the glow of recognised scientific conquest; and the still more inspiring and soul-satisfying azure tints of the heaven of scientific salvation, which will surely secure those who continue faithful to its creed, and obedient to its precepts, from the formerly undefended onslaughts of the invisible demons of disease.

That a good many of the smaller student text-books of the day do, nevertheless, unmistakably represent an unskilful dismemberment of the larger manuals of recognised reputation

is a fact which cannot bear question, and cannot offer a righteous defence. The evil is there; the explanation of its presence would involve a hopelessly long and tangled discussion; the termination of its thread of existence is still pretty surely a long way off. Let us each then do our duty, in our respective spheres of action, to the sacred cause of enlightenment by always continuing to contribute—each according to his (or her) powers—to the common reservoir of the oil by which its lamps are supplied. It is the best tribute we can offer to the earthly representative of the health-giving Solar Deity.

If the preparation of small medical manuals is ever justifiable, it is surely in the case of volumes of the type of Dr. Williams' "*Minor Maladies.*" It deals with a very limited number of subjects—in "lecture" form—but, as usual, "revised, amplified, and rearranged." The originals were published in the *Clinical Journal*, and elsewhere. There are nine chapters: "Coughs, Colds, and Sore Throats;" "Indigestion;" "Constipation, Diarrhoea, Vomiting, and Giddiness;" "Rheumatism, Neuralgia, Headache;" "Goutiness;" "Change of Air;" "General Health;" "Some Drugs, and their Uses;" and "Insanity." The author tells us in his preface that: "The object of gathering these lectures into the present volume has been to supply, in an accessible form, detailed information on subjects with which the ordinary text-book necessarily deals in a cursory manner. The newly qualified medical man while usually admirably equipped in the diagnosis and treatment of what may be called the classical diseases is nevertheless but very partially informed on many subjects concerning which he will be expected to speak and act with authority as soon as he enters into practice. It is these subjects with which I have, in the following pages, attempted to deal in such a manner as may prove of real service not only to young practitioners, but also to those whose opportunities for access to this kind of information have been limited."

We consider that Dr. Williams has earned the thanks of the reading section whose want he has recognised, and for which he has undertaken to cater. He gives many very important

clinical hints of a type which are very likely to be omitted from the student's text-book, and which are of great importance in bed-side divination and tactics. He does not consider that the chronic conditions to which the term "rheumatic" are usually applied have any real relationship with rheumatic fever. He adopts Stockman's conception—that such morbid entity "consists in inflammation and hyperplasia of the connective tissue in patches, and the condition may be widely spread over the body, or be confined to a certain area of it." We noted carefully the view that the *febricula* or *feverish cold* is an impartial attack on all the fibrous tissues of the body; the unwary practitioner "almost invariably labelling it 'influenza.'"

Diseases of the Eye and Ear. A Manual for Students and Practitioners. By ARTHUR N. ALLING, M.D., and OVIDUS ARTHUR GRIFFIN, M.D. "The Medical Epitome Series." Edited by VICTOR COX PEDERSEN, M.D. London: Hodder & Stoughton. Pp. 252.

THIS is another added to the long list of small text-books whose endeavour was to present the subjects of ophthalmology and otology in as clear, thorough and interesting a manner as the limited space would permit. Only the "cardinal facts" have been mentioned, as the authors consider that a complex consideration is confusing to the beginner, but that after the fundamental principles have been mastered the details of a more extensive work are readily acquired. In all such books there is danger of the nutriment being supplied in too concentrated a form for easy assimilation; each chapter, however, has at the end of it a series of questions which help the student to test his knowledge of what he has just read—this is certainly a help to the student, and forms a useful feature in the book, which is nicely written, well considered and reliable, and has but few Americanisms.

We do not much care for epitomes as a means of teaching students, but the epitomes under consideration are amongst the best of their kind.

PART III.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. MAGEE FINNY, M.D., F.R.C.P.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF PATHOLOGY.

President—J. F. O'CARROLL, M.D., F.R.C.P.I.
Sectional Secretary—PROFESSOR WHITE, F.R.C.S.I.

Friday, November 23, 1906.

THE PRESIDENT in the Chair.

Pathological Effects of Röntgen Rays on Animal Tissues.

DR. HARVEY reviewed the main steps in the investigation of Röntgen effects since the discovery of the rays in December, 1895. He described Holzkecht's pastilles as the first attempt to measure the quantity of radiations employed, and showed how their employment led to definite laws concerning skin reactions. Passing on to the mode of action of the rays he mentioned Scholtz's view that epithelium is primarily affected, and those of Baermann and Linser and Gassmann, who hold that the effect is chiefly upon the vessels, and detailed the chief experiments of these authors. As to the actual agent causing dermatitis, the author held the Röntgen-rays themselves responsible, favoured the tropho-neurotic theory, and mentioned some original experiments on the effect of vasomotor disturbance on the phenomena. He quoted the experiments of Perthes, Dalous and Lasserre as favouring a definite selective absorption. Coming to internal organs, he

mentioned Heineke's experiments on the spleen, and those of Aubertin and Beaujard on the blood cells. With regard to the question of a Röntgen leucotoxin he, related the findings of Helber and Linser, and Curschmann and Gaupp on the one hand, and those of Kleineberg and Zoeppritz on the other. Lepine and Boulard's experiments on metabolism of glycogen were also mentioned. Albers Schönberg's classical experiments on the generative organs were recounted, as were those of Halberstaedter and others. Having mentioned some clinical features of X-ray treatment of pathological interest, Dr. Harvey spoke of his own experiments, showing microscopic and lantern preparations. The animals operated on were rabbits and guinea pigs, and the organs chiefly examined were the spleen, ovaries, testicles, and suprarenals. The experiments, which are in a preliminary stage, so far support Heineke's results in regard to the spleen. The germ centres of the Malpighian corpuscles were observed to be the first to suffer. Chromolysis and diffuse nuclear staining are present in most of the sections, and affect chiefly the young and proliferating cells. Vaso-dilatation and congestion are also common. The ovarian and testicular changes were similar to those described by previous authors. Dr. Harvey found congestion and hæmorrhages in the suprarenals of all animals subjected to X-ray treatment.

DR. STEVENSON mentioned vesication as occurring in lupus in an area of the skin which had previously been exposed to the Finsen light. The application of the X-rays had made the skin react at that particular part, while there was no vesication or marked reaction in the surrounding parts.

DR. WALTER SMITH considered the paper of great general interest from the point of view that such pathological observations bridged over the interval between normal physiology and therapeutics which might be called applied physiology. Broadly speaking, they might regard the action of Röntgen-rays and the like as an act of stimulation; but they need not attempt to distinguish too narrowly between the phenomena of excitation and depression, since they were but quantitative opposites which followed from continued application of the same stimulus. The nature of the Röntgen rays had long been a puzzle to physicists. Now, however, it was agreed that they represented ethereal pulsations, and did not correspond in any way to a molecular bombardment. In discussing the physiological or pathological

action of the rays, he thought it was impossible to form any satisfactory conception, unless they also took into consideration other therapeutic agencies with which they were familiar, such as the Finsen rays or radium. It was, he thought, rather unfortunate for students that the word "ray" had acquired two different significations. It retained its old meaning of undulatory vibrations of the ether, and was also applied to a direct stream of particles like the hail of tiny projectiles from radium. To get at a satisfactory explanation of the phenomena would require a thorough knowledge of the effects of all sorts of vibrations of different wave lengths not only on animal, but on vegetable, tissues, distinguishing between the action on the higher and lower forms of vegetable life. The first indication of the therapeutic value of the rays arose, about 1900, out of the observation of their depilatory effect—it was premature to expect a coherent or fully satisfactory statement at the present time.

DR. C. M. BENSON said that he had been handed over patients who had been treated for lupus by the Finsen light, and in his experience there had been no formation of vesicles.

DR. SCOTT congratulated the Section on Dr. Harvey's contribution, which fixed certain points from which they could advance further. They knew certain tissues on which the rays acted; they might act on others; but that they should act on tissues of such a peculiar nature as the spleen and on the growing cells of epithelium would suggest that possibly growing cells were affected by the rays as they were by differences of acidity and alkalinity.

DR. KIRKPATRICK thought they were perhaps frightened by the bugbear of permanent baldness in using the rays. He knew of a case of a woman in which depilation was produced, and after some months the hair grew more vigorously on her face than before the treatment.

THE PRESIDENT and DR. MOORHEAD asked several questions.

DR. HARVEY, in reply, said he had read of the X-rays being considered as a cause of abortion. It would seem possible that they should have such an effect, as they seemed to show a greater effect on young and actively developing cells than on adult ones. His explanation as to what caused the death of the guinea pigs in his experiments was that the X-rays caused a degeneration of cells, whereby a toxic product was liberated which killed the animals. The toxic effect of the rays had been observed in

several cases, and he was in the habit of seeing that patients undergoing the treatment for malignant disease should take aperient medicine. The epithelium of the skin was not at all as sensitive to the action of the rays as that of the testicles or ovaries or spleen.

SECTION OF SURGERY.

President—H. R. SWANZY, President, R.C.S.I.

Sectional Secretary—EDWARD H. TAYLOR, M.D., F.R.C.S.I.

Friday, November 30, 1906.

THE PRESIDENT in the Chair.

Sphincteric Control of the Bladder in Relation to Prostatectomy.

MR. ARTHUR BALL read a paper on the above subject. Having pointed out that it had generally been accepted that in man the important muscle was the compressor urethræ, he described a case of perineal prostatectomy in which there had been almost perfect control through the perineal fistula after the drainage tube had been removed five days after the operation. In this case control must have taken place by means of the internal sphincter vesicæ. As the result of this observation Mr. Ball had carried out experiments on dogs, having ascertained the anatomical similarity was greater in the dog than in other animals, including the commoner forms of monkeys. These experiments, which were described in detail, proved that the important sphincter muscle in the dog was the internal sphincter vesicæ. Incidentally, he pointed out that the prostate might enlarge to an enormous size in the dog without producing any symptoms. In conclusion, he stated that in order to prove absolutely that in man the internal sphincter is the important muscle it will be necessary to obtain observations on all cases of surgical interference with this region, particularly in young patients who have not reached the complication of an enlarged prostate, and that it seemed quite incorrect to argue from operations on patients with enlarged prostates that the chief sphincter of the bladder normally lies in the membranous urethra.

MR. T. E. GORDON considered the communication one of the most important which had been laid before the Academy for some time. The experiments appeared to be conclusive as far

as they went and as far as it was possible to draw inferences with regard to human physiology from the anatomy and physiology of the dog.

MR. JAMESON JOHNSTON said it had been difficult for him to account for the complete control after suprapubic prostatectomy. He could not conceive that the internal sphincter could exist after the amount of manipulation which it had to undergo, and he thought the amount of damage done to the bladder wall would prevent the internal sphincter from acting again.

MR. GUNN said that in cases where the prostate had been removed by the suprapubic method, and where he thought the internal sphincter was either destroyed or taken away, good control had been got. He believed that the compressor urethræ muscle was the most important to leave behind when interfering with the bladder.

Limits of Abdominal Operations.

MR. T. E. GORDON read a paper on the above subject, and, in the course of his remarks, discussed the indications for fixation of a movable kidney. He drew a distinction between those cases in which the symptoms were clearly referable to the kidney and these which were only "associated." Amongst the latter he specially referred to vomiting and other evidences of gastric disturbance. Whilst operation seemed justified in the first class, in the second it was likely to be disappointing in its result. He held that the vomiting, though, no doubt, occasionally a nervous reflex phenomenon, was usually caused by a gastropexy, and could not therefore be benefited by a nephropexy. He especially insisted on the folly of operating to cure a general neurotic state. Mr. Gordon considered that the proper limits of operation had been exceeded in cases of movable kidney, but he did not think that this had been the case in the treatment of appendicitis. He thought that one attack of appendicitis was sufficient to justify operation, but this attack must have been unequivocal. The difficulty here lay in diagnosis, and he gave instances of such difficulty which he had met with in practice, and he said that the difficulties arose from the remarkable variability of the disease. Thus one might see appendicitis without fever, and sometimes without distinct tenderness in the right iliac fossa. Again, the position of the tumour varied, and he had met with a case of undescended cæcum where the appendix was coiled up

close to the gall bladder and pylorus. He also referred to the association of appendix pain with pneumonia. In conclusion, the limits of operation in the surgery of the stomach were briefly alluded to, particularly with reference to gastro-enterostomy as a treatment for gastropnoia. Here again a decided neurotic element was a bar to operation.

MR. W. TAYLOR said it was not always easy to be certain that symptoms were distinctly referable to movable kidney. In his experience a larger proportion of cases of stomach trouble than Mr. Gordon appeared to concede were due to movable kidney. The speaker instanced several cases bearing on the point, as also on the difficulty, of diagnosis in appendicitis.

MR. JAMESON JOHNSTON agreed that only cases in which the symptoms were directly traceable to misplaced kidney should be subjected to operation. He had never seen two cases of appendicitis exactly alike, and he would be glad to have information as to the exact indications for operation.

MR. GUNN thought that in almost every case where they got a tumour in the appendix region pus was present. He referred to kinking of the ureter as a test.

MR. BLAYNEY said that Mr. Gordon's statement that it was inadvisable to operate in acute appendicitis while inflammation was present should not be allowed to pass without some qualification. It was, of course, advisable not to operate if it could be ascertained certainly that the patient would recover. But there was no definite way of doing so, and he believed that if patients were all operated on in the first twenty-four hours in acute appendicitis there would be less harm done than by adopting the waiting policy.

MESSRS. BALL, STOKES and KENNEDY also spoke.

BERNARD CONNOR.

A Forgotten Irish Medical Exile and Scientific Pioneer of the Seventeenth Century (1666-1698). By JOHN KNOTT, M.A., M.D., Ch.B., and D.P.H. (Univ. Dub.); M.R.C.P.I.; M.R.I.A.; &c.

(Continued from page 68.)

To such an English community, seething with scientific curiosity, scientific and religious criticism and scepticism, physical research and discovery, and philosophical investigation and reflection, Bernard Connor introduced himself in the February of 1695. Such was the British garrison of intellectual aristocracy when he "came, saw, and conquered." His reputation must have preceded him, for he at once entered on active practice in London; read public lectures (a special "*Post-graduate Course!*") at the University of Oxford; and, while so engaged, had printed in London "some accurate and learned dissertations in Latin," bearing the general title of *Dissertationes Medico-Physicæ de Antris Lethiferis, de Montis Vesuvii Incendio, de Stupendo Ossium Coalitu, et de Immani Hypogastri Sarcomate*; which made a very favourable impression on contemporary leaders of science, and so emphasised the fame of the author's powers and attainments that he was requested to repeat his course of lectures in London on his return. This he did with such phenomenal success that he was at once elected to the Fellowships of the Royal Society and the Royal College of Physicians, and received a special invitation from the University of Cambridge, asking in the most gushing terms, that the illustrious recipient—whose fame had already dazzled the most critical of his contemporaries, and whose transcendent attainments had fascinated and illuminated the leading intellects of Paris, Germany, Poland, and Belgium—should give the representatives of that institution also an opportunity of listening to the teacher of whose parts and acquirements they had heard opinions so surpassingly favourable, delivered from all directions and sources. The original preliminary form of this request was contained in a letter which was printed with some of Connor's works in a small volume published two years later; and, coming as it does from the University of Cambridge, constitutes by itself ample proof of the colossal proportions which the fame of our medical "Exile of Erin" had attained at the

early age of twenty-nine. I venture to hope that no apology to my readers is requisite for its reproduction *in extenso* :

“VIR DIGNISSIME,

“Quanto cum applausu, quantaque omnium comprobatione Anatomicas tuas, Chymicasque Prælectiones *Oxonii* nuper habuisti, hic auditum est. Ut etiam vota omnium & animos explevisti, cum nonnullas hujusmodi Exercitationes *Parisiis* aliquot abhinc annis instituisti, ab oculatis quibusdam testibus, qui & ipsi quoque perscrutandæ Naturæ non inanem dederunt operam, mihi insuper innotuit ; ex quo Te, quippe cui Germaniam, Italiam, Poloniam, Belgiumque peragranti cum Malpighio, Bellino, Redo, aliisque celeberrimis ibi gentium Medicis familiaritas intercessit, recondita Medicæ Artis Arcana peritius indagasse nullus dubito. Illas etiam *Dissertationes* tuas *Medico-Physicas*, ubique referentes Autoris Ingenium, *Oxonii* nuper excusas *de Antris nempe Lethiferis, noxiis Exhalationibus, Venenis Subterraneis, De montis Vesuvii Incendio*, aliisque stupendis Naturæ Phænomenis summa cum delectatione perlegi. Hisce de causis mihi met ipse persuasi Te non modo *Chymicam* Anatomiamque feliciter excoluisse, sed Rationem porro quadam excogitasse, qua potis es alios etiam has Artes multo citius, quam usu venire solet, edocere ; quam mihi hac in parte persuasionem confirmarunt Amici cujusdam *Oxonienensis* Literæ. Non ipse quidem hic loci unicus is sum, cui maxime in votis est, ut aliquot saltem Menses apud nos etiam agas, mode continuæ tuæ hoc a Te impertrari sinant Occupationes : Turba mehercle sumus, qui nobismet, ut primum æstate jam nunc elapsa de tuo ab *Oxonio* discessu percrebuit fama, præpropere tuum ad nos adventum gratulabamur. Cum autem tua Te Praxis *Londini* occupationem habeat, quam ut pari beneficio Academiam quoque nostram obstringas, Schedulam saltem de instituta Exercitationum tuarum Methodo à Te exorare fas sit. Lubens etiam rescirem, siqui Te prælegentem audire cupiant, an Te *Londini* publicis hisce Studiis vacare sinant Res tuæ. Hanc à Te Gratiam plurimi petunt, at præ ceteris,

“Tui observantissimus,

C. P.”

“*Cantabrigiæ*,

“id. Octob.,

“1695.”

The reply of Connor included a Syllabus (“*Tabula*”) of his Course of Lectures, which is a document of immense interest to

all students of scientific progress and of the evolution of human opinion. A glance at the contents will show to the skilled reader how completely our Irish Medical Hero had "taken all knowledge for his province;" as the lectures themselves proved to the most learned and critical of his English contemporaries that he had done so with unparalleled success. The "Table" is as follows —

Nova Tabula Oeconomice Animalis Demonstratæ OXONII primum, Ann. 1695, dein LONDINI, & tandem CANTABRIGIÆ Ann. 1696.

1. *De Elementis, Fabrica & Systemate Mundi, & de mutuo partium ejus nexu & dependentia.*

2. *De Corporum terrestrium Elementis, ubi (post Chymica quædam Experimenta) ad Examen vocantur Natura, Proprietates, Figuræ & Effectus Terræ, Aquæ, Salis & Sulphuris, uti & Animantium, Vegetabilium & Mineralium Ortus.*

3. *De Corporis Humani fabrica, ejusque in partes solidas & fluidas divisione, ubi de solidarum præcipue Partium Natura & contextu.*

4. *De Fluidis Corporis Humani Partibus; de Natura, Principiis, Fermentatione, & Circuitu Sanguinis, de Febre, de Nutritione: de Temperamentis, de variis Humoribus in Sanguine contentis; ubi etiam de Juventute, Senectute & Morte.*

5. *De Sanguinis reparatione; de Chylo, Vasis Lacteis & Ductu Chylifero; de Masticatione, Digestione, & Fermento Ventriculi; de Præcipitatione seu Separatione Excrementorum a Chylo; ubi de Oesophagi seu Gulæ, Ventriculi, & Intestinorum structura: de Motu Peristaltico & Antiperistaltico; de Glandulis; de Mesenterio; de Lympha, Vasisque Lymphaticis.*

6. *De Cordis Fabrica, Motu & Usu; ubi de variis Pulsuum generibus; de Polypo & Deliquio; Nova item affertur Hypothesis de Cordis Motu, & de Sanguificatione.*

7. *De Arteriæ Tracheæ, Pulmonumque structura; ubi de Respirationis Usu & Causa; de Pleuritide, Phthisi, Asthmate; Natura etiam Aeris, Nitri, & Spirituum Animalium, aliter quam hactenus, explicatur.*

8. *De Præcordiis seu Vasis Sanguiferis Cordi appensis; ubi de Venarum ac Arteriarum Structura, Motu, & Differentia.*

9. *De variis Venæ Portæ, & utriusque Cavæ, Propagaginibus.*

10. *De utriusque Aortæ per totum Corporis propagatione.*

11. *De Cerebro & Cerebello; ubi de Generatione ac Motu Spiri-*

tuum Animalium ; de Perceptione, Somno, & Vigilia ; de Deliriis, Mania, Phrenitide ; de Animæ in Corpus Influxu & Effectu ; ubi de Sensatione & quinque Sensuum Organis.

12. *De Oculo, Lachrymis, Ductibus Aqueis & Nasalibus ; de Visione, Luce, Coloribus, Cæcitate, & præsertim de peracuto quorundam Animantium Visu.*

13. *De Nasi Fabrica ; de Membrana Pituitaria ; de Muco, Olfactu, & Sternutatione ; de mutuo Nasi & Linguae Consensu.*

14. *De Lingua, Palato, & Gingivis ; de Motu & Musculis Linguae ; de Gustu & Voce.*

15. *De Larynge, de Mutis, Pharynge, & Osse Hyoide ; de Amygdalis, Salivatione & Saliva ; de Parotidibus, Gargareone, siti, deglutitione, &c.*

16. *De Tactu, Cuticula, Cute, Pilis, Glandulis Milliaribus ; de Corpore Reticulari & Mucoso ; de Pinguedine, Transpiratione, Sudore, Scabie, &c.*

17. *De Aure, Aquæductu, Auditu, Surditate, &c.*

18. *De Fabrica, Numero, & Usu Nervorum ; de Motu & Sensatione ; de Pari Vago, & Nervis Intercostalibus per tota Pectoris & Abdominis Viscera diffusis.*

19. *De Structurâ, variisque Musculorum figuris ; de Fibris Vascularibus ; ubi de Motu Musculari, Naturali & Spontaneo ; de Pandiculatione, Oscitatione, Saltatione, Natatione, & Volatu ; de Motu Convulsivo, Tonico, Systaltico, Epileptico, &c.*

20. *De Hepate, Bile, & Pancreate ; ubi de Bilis & succi Pancreatici Secretione, & Motu, eorundemque cum Chylo mixtione. De colico dolore.*

21. *De Glandularum omnium Naturâ & Differentiis ; de variis Humoribus, qui Excrementitii & Recrementitii nuncupantur, Filtrationibus.*

22. *De Lienis Usu & Structurâ ; ubi de Melancholiâ, de obstructionibus, &c.*

23. *De Renibus, Glandulis Atrabilaris, Tubulis Urinariis & Vesicâ ; ubi de Sero Sanguinis, de Urinæ Colore ejusque Contentis ; de Calculo, Arenis, &c.*

24. *De Corporis Fulcris, sive de Ossium structura, Lamellis, Fibris, Cavitate, Medulla, de Ossificatione, de Apophysibus, de Ligamentis, Articulis, Podagra, Rheumatismo, Rachitide, &c.*

25. *De Partibus Viri Genitalibus ; de Naturâ & formatione Seminis ; ubi de Effectibus ejus in Utero Muliebri, de Eunuchis, Gonorrhœa, Lue venerea, &c.*

26. *De Partibus Genitalibus Mulieris ; de Ovis & Ovario ; de Generatione, Conceptione, Prægnatione, Fluxu Menstruo, Partu, Monstris. Quomodo Mulier Lue venerea inficitur & inficit. De Sterilitate.*

27. *De situ, Nutritione & Involucris Embryonis in Utero ; de Vasis Umbilicalibus, Secundinis, de Vi Maternæ Imaginationis, & de Modo peculiari Circuitus Sanguinis in Fœtu.*

28. *Animadversa quædam de Animæ & Corporis Unione.*

The fact that an Irishman just returned, at the age of twenty-nine, after a nine year's sojourn (or exile)—*Lehrjahre* plus *Wanderjahre*—in the great centres of enlightenment of Western and Southern Europe, was immediately "called" to deliver a course of lectures on the most advanced subjects and questions of the scientific thought of the period, before the heads of England's premier University, recalls the truth that that great institution has at various prominent landmarks of its historic development displayed a degree of cosmopolitanism in its pursuit of science and enlightenment which is by no means universally characteristic of corporations of its class. This fact suggests to the present writer that its original foundation was prophetic as well as auspicious. When Alfred the Great felt that the elevation of his Kingdom and subjects depended on the enlightenment of the latter, he acted on the patriotic inspiration, very much as did Peter the Great of Russia, more than eight centuries later ; he came over to Ireland to be educated himself, and imported an Irishman who founded England's first University. And the history of the institution would seem from the very beginning to display a most instructive example of the advantages of "cross-fertilisation" in the genesis and growth of national intellect, as well as of individual physique—animal and vegetable. And precisely at the period at which the ruthless, but patriotic, architect of the (now so troubled) Russian Empire was setting his house in order before making his educational pilgrimage to Holland, England, and other parts of Western Europe, we find the brilliant young fellow-countryman of *Scotus Erigena* delivering a series of special lectures to the English representatives of light and leading, in the University which the latter had founded so many hundred years before. The significance of the combined facts would, of course, not possess the monumental interest which it assuredly does had it not been for the peculiarly painful relations of the two countries during the far greater portion of the very long interval.

Stenographers and journalistic essayists—of presses white or “yellow”—not having at that date attained the evolutionary stage of available functional activity, Bernard Connor’s lectures were not reported for the scientific edification of the intelligent general reader. But his opinions and teachings regarding most of the principal subjects named in the syllabus may be gathered from his published writings. Of these the most representative is one whose appearance caused an immense sensation at the time, and which bears the following comprehensive title :—

Evangelium Medici: SEV MEDICINA MYSTICA; DE Suspensis Naturæ Legibus, SIVE De MIRACULIS; Reliquisque τῶν τοῖς βιβλίοις Memoratis,] quæ Medicæ indagini subjici possunt. *Ubi perpensis prius Corporum Naturâ, sano & morboſo Corporis Humani Statu, nec non Motûs Legibus, Rerum Status super naturam, præcipuè qui Corpus Humanum & Animam spectant, juxta Medicinæ Principia explicantur.* A BERNARDO CONNOR, M.D. è Regia Societate Londinensi, nec non è Regali Medicorum Londinensium Collegio. Londini, Sumptibus Bibliopolarum *Richardi Wellinton*, in Cœmeterio D. Pauli; *Henrici Nelme*, in loco Royal-Exchange dicto, & *Samuelis Briscoe*, in loco vulgò dicto Covent-Garden, MDCXCVII.

As the luminously descriptive title of this volume denotes, the aim of the author was to explain all the phenomena exhibited by the human body and mind—not only in health and disease but in the states attributed to miraculous agency—by (a few) primary fundamental principles. The amount of attention which it excited was well proved by the fact that—in that period of very limited diffusion of scientific education and reading—it was reprinted within the year, not only in London but in Amsterdam. And the originality of his point of view was very emphatically demonstrated by the cannonade of (*soi-disant*) orthodox criticism which it called forth—in which, as is perhaps invariably the case, the reports which came from the most amateurish section of the Volunteer Brigade were always the loudest. Even the leading English philosophical critic of the time issued in the following year a printed attack on Connor and his book, his religion, his philosophy, and his scientific facts and methods, which, among other gems of unspeakable wisdom and charity, contains the following sentences :

“To prove that our moderns are as wild, extravagant, and presumptuous as any of the ancients, either poets or philosophers,

I may instance in Dr. Connor, whose imagination has taken a flight beyond the spheres of sense and reason. Other philosophers were only ambitious to explicate nature and the common effects of it; but no less a subject can satisfy him than the omnipotent author of nature, and his extraordinary and miraculous acts, which he pretends to explain; for he thinks he understands them as well as he does the common phenomena of nature. This, I believe, will be granted him without much difficulty, for there is very good reason to believe that the works of nature are as much hid from him as the mysteries of it, which he treats of, are from others. And though he talks that he has well considered the laws of motion and the force of nature, yet it is plain that he knows not how to determine what proportion of motion there is in two bodies whose bulks and velocities are given. One can neither be wiser nor better for what he has written, except to be convinced of the reasonableness and excellency of modesty and humility, seeing his attempts are as unsuccessful as they are shamefully impudent; and yet his book must have the sacred name of *Evangelium* prefixed to it, for which the divines should severely chastise him, to whom I leave him."

Readers will, I think, readily agree with me that if the liberal-minded English philosopher had at that date been furnished with the inquisitorial powers of a Torquemada, the results would have been somewhat *inconvenient*—to put it in the mildest form now available—with regard to the person and prospects of Bernard Connor!

The text of this comparatively small volume is divided into sixteen sections, and bound up with it is a brief but brilliant and extremely concentrated *Tentamen suum Epistolare De Secretione Animalis*, and a few short, appendicular, items. Of no author with whose works I am acquainted can it be more significantly and truthfully stated that he began with the beginning. The universe was ushered into existence by the Creator in the form of two ultimate constituents (Matter and Spirit), and governed by two (sets of) laws—those of *Motion* and of *Morals*. "*Nihil autem per materiam exprimus, nisi substantiam in omnes dimensiones vere extensam, quæ varias habet partes sibi applicatas, & extra se positas; quæ partes, in minores adhuc particulas, & hæ adhuc in minores sine fine dividi possunt.*" The world of matter existed in bodies of two species: *Organic* and *Inorganic*. These were distinguished; the latter by the homogeneity, the former by

the diversity, of its ultimate constituents. . The writer's idea of an *atom* is perhaps more adaptable to the recent revelations of radio-activity than is the Daltonic one which preceded the discovery of the existence of the latter physical phenomenon : " *Atomi autem nomine hic nihil aliud intelligi velim, nisi minimam corporis alicujus particulam at aliis particulis vere divisam, & in se sine fine divisam.*" Every existing form of matter was made up of, and contained in its ultimate representative particles, certain proportions of each of the four elementary principles : *earth, water, salt, and sulphur*. Accordingly, we have the idea of a *molecule* which is worthy of passing note, even at present date : " *Molecula est quævis vel minima mixti alicujus corporis portio, quæ ex quatuor primis principiis coalescit.*" Our author's version of the influence of the shape of constituent atoms on the properties of various substances, organic and inorganic, and on the respective effects produced by these on the senses, are thoroughly reminiscent of the good old pre-Trojan theory of Moschus ; as elaborated by the philosophic Democritus, and transmitted to us after the adoption of Epicurus, in the almost inspired metrical version of Lucretius. There are three states of the human body : *secundum naturam* (health), *præter naturam* (disease), and *super naturam* (known as *miraculous*). Connor's summary of *absorption* and *circulation* forms an excellent specimen of his powers of lucid condensation, and affords a very striking contrast indeed to the diction of William Harvey. Accordingly, I do not think it necessary to offer any apology for the length of the quotation :—

" *Quare tenuior ipsius & fluidior portio, relictis pone fœcibus per podicem excernendis, à sitientibus vasorum lacteorum ostiolis in cavitatem intestinorum hiantibus, sub Chylî nomine, consistentia, et colore albicante lac referens, absorbetur. Hinc Chylus per mesentericas Asellii glandulas ad Pecqueti receptaculum cum affluente lymphâ miscendus & ulterius diluendus vehitur. Illine per ductum Thoracicum à rene sinistro ad jugulum usque supra dorsi vertebrae porrectum in subclaviâ venam sinistram exoneratus. Istinc declivi tramite per venam cavam ad cordis ventriculum dextrum tendit, & tanquam rivulus cum toto messæ sanguinæ flumine à toto corpore huc confluyente commiscetur ; ubi cum eodem subactus, per totum corpus & per exilissimæ & anfractuosos partium canaliculos jugiter circulatur ; ab inspirato aëre rarefactus, intestina principiorum turba fermentescit, &*

cruoris tandem naturam assumit. Sanguis sic à sanguine elaboratus & confectus, perenni circuitu à corde, tanquam à machina hydraulica ad omnes & singulas corporis partes per arterias propellitur, & à corporis partibus per venas ad cor denuo revertitur, hinc iterum in orbem confestim agitandus."

Our author adopts the Platonic (triplex) system of the human economy :—

"Homo totus ex triplici coalescit substantia, *Spiritu, Corpore, & Anima*." The *Spiritus* is the thinking agent—"pars hominis cogitans;" and the *Anima* resides in the fluid portions of the body. Among the multiplex distinctions of function we are told that the former presides over voluntary motion, and the latter over the involuntary. His theory of the relationship of nervous influence and muscular movement may be considered worthy of a passing glance, as the subject has hardly been, up to the present, removed from the borderland of metaphysical hypothesis :—

"Sanguis porro ad musculorum fibras accedens, & eorundem tubulos subiens, necnon cum occurrentibus ibidem spiritibus animalibus per appensos nervos affluentibus præter modum rarefactus, vel, ut aiunt, explosus, easdem fibras dilatat, & dilatando abbreviat; & hoc modo motus producitur muscularis."

Diseases are also arranged in three classes :—Of the solids; of the fluids; and mixed (*morbos utrarumque partium*).

All this is but introductory to the discussion, *De statu Corporis Humani super naturam*. In order to bring so-called *Miracles* under the domain of first principles, and reconcile *supernatural* phenomena with *natural* laws (as ordinarily observed to regulate the course of natural processes), he tabulates three laws of motion; and then goes on to formulate the corresponding number of suspensions of the same. For the benefit of the inquiring reader I arrange them in parallel columns :

Tres motus leges.

1. Corpus quod movetur ab alio corpore movetur.

2. Corpus in motu positum motum obviis corporibus, si molis non sint ingentis, communicat.

Tres motus legum suspensiones.

1. Corpus moveri poterit sine occasione motus alterius corporis irruentis.

2. Data Corporis irruentis occasione Corpus poterit non moveri.

3. Corpus in motu positum,
in motu semper persistit, donec
motum corpori communicat.

3. Corpus in motu positum,
motum subito deperdere
poterit, non communicato
eodem alteri corpori ambienti.

As the Almighty Creator was the great First Cause, and all the so-called *effects* and *laws* of *Nature* are wholly connected with, and dependent on, matter and motion, the inevitable inferences, in presence of a presiding Deity, are that : “ Effectus naturales vere supernaturales sunt, & vice versa ” ; and “ Nullæ sunt veræ causæ naturales.” The Creator, who is the sole immediate cause of all things, who produced *matter* and subjected the same to the *laws of motion*, must, of course, be able to suspend any of the latter—or to ordain new ones, whenever he thinks proper. This preliminary axiom being granted, all so-called miracles may be reduced to first principles :—

“ Supremus Rerum Opifex, qui solus est unica & immediata effectuum omnium causa, etiamsi juxta *motus leges*, quas ipse sancivit, omnes *naturæ* effectus hactenus ut plurimum produxerit, poterit tamen pro arbitrio, vel easdem *leges* abolere penitus, vel suspendere aliquamdiu, prout ipsum libitum fuerit, & suspensis hujusmodi *legibus*, eosdem effectus, vel novos creare poterit. Qui effectus sic creati, quoniam supra solitum *naturæ* cursum producuntur, *Miracula* rite dicuntur.”

Having granted—what cannot be denied—that the Almighty Architect of the Universe made *Matter* and arranged its laws, the impossibility of the suspension of the latter by the intervention of the same Supreme Will becomes, of course, absolutely unthinkable. And, accordingly, Connor tells his readers : “ Totus hujus operis cardo circa hanc unam volvitur hypothesim, nempe quod *Leges motus a summo Legislatore conditæ ab eodem suspendi possunt.*” I cannot, of course, follow the steps of his various applications of this proposition ; by which he shows that, on suspension of the *first* law, paralysis may be arrested—the lame may walk, the deaf may hear, the blind may see ; water may be turned into blood, or into wine ; and the occurrence of “ bloody sweat ” becomes explicable. Suspension of the *second* law would account for invulnerability of the living body—its resistance to human weapons and missiles, to the teeth of wild beasts, and to the usual consequences of being swallowed by a sea-monster ; to the accidents of the lions’ den, and of the fiery

furnace ; and to the wear and tear of animal existence. Suspension of the *third* law would account for *human parthenogenesis*, &c., &c. His reasoning on the subject of generation is exquisitely keen, but is perhaps surpassed in its quality by his elaborate dissertation on the *resurrection* of the human body. His treatment of this question in connection with that of the identification of the future individuality of the practising *cannibal*—and that of all and *sundry* of his victims—is carried out with a *subtlety* worthy of Duns Scotus, while never departing from the *angelic* reverence of St. Thomas Aquinas. His discussion of the question “An multiplex potest esse Corporis humani Præsentia,” is one which I would strongly recommend to the best attention of the host of correspondents who have recently deluged the columns of the *Daily Telegraph* with their personal experiences and private opinions on the subject of *Dreams and Visions*. In sweep of imagination it leaves the famous hypothesis of Sir Boyle Roche far, far behind—while distinctly suggestive of the same national inspiration. His statement that “*Nihil est enim in Intellectu, nisi quod Corporis ministerio per sensus Organa ad callosum cerebri Corpus, tanquam ad sacram Palladis, in qua habitat, arcem advehitur,*” deserves notice as the opinion of a contemporary of Locke. The following observations regarding the actual *entity* of motion a’e, perhaps, worthy of Berkeley at his best :—

“Cum autem hicce de motu conceptus penes mentem duntaxat resideat, in se motus nihil revera erit ante intellectus examen existens, sed erit tantum mentalis de moto corpore respectus. Unde etiamsi motus dici quodam modo posset, *transitus corporis a puncto quodam mundi immobili*, quod mente fingimus, *ad alium punctum immobile* ; hicce *transitus* nihil percipitur esse vere distinctum ab animo concipiente, seu corpus motum cum spatio & ut oque *motus* termino comparante. Motus igitur non est qualitas ulla, aut ut loquuntur, entitas, ab uno corpore in aliud corpus transiens : . . .”

I have no doubt that some readers who have (read or) heard a very great deal about Sir Isaac Newton, and a very little—or nothing—about Dr. Bernard Connor, may be of the opinion that everything concerned with the legislation of the phenomena of motion had been finally formulated by the great English mathematician (Newton’s *Principia* was published in 1687). To such possible critics I will embrace this opportunity of pointing out that “Newton’s laws,” like other productions of fallible humanity,

present the character stamp of such authorship. As G. H. Lewis forcibly puts it : "Who will say that the Law of Causation, or the Laws of Motion, although *suggested* by experience, and found to be *conformable* with it, do not transcend it ? These are τὰ μετὰ τὰ φυσικά." And the best that can be said of his *principles*, by one of the ablest of the recent apologists for his axioms and demonstrations is : "There is absolutely no confusion of thought. The demands of our intellectual faith, whether explicitly stated or implicitly involved in other statements, are essentially rational. The treatment is luminous as it is profound. Attempts have been made to substitute a more logical procedure ; but all such attempts lead to intricate phraseology and a corresponding intricacy of dynamic conception quite beyond the powers of apprehension of the tyro. And even when all is done it is doubtful if the strict canons of logic are quite satisfied. It may be safely said that, as an introduction to the study of dynamics, Newton's laws of motion, along with the definitions of the physical quantities involved, have not as yet been surpassed." These, of course, were not exactly the points of view from which we were taught to regard the majestic authority of Newton when preparing for the examinations of our undergraduate course !

The views of Connor of the functions of the nerves of sensation (general and special), and their structural adaptation to the same, will bear very favourable comparison with those of his contemporary, John Locke ; and with those of Thomas Willis, the celebrated Oxford Professor of Anatomy, whose name is indelibly stamped on the base of the human brain, and whose death occurred twenty years before our fellow-countryman's visit to his University. This will be shown by a short extract :

"Omnes igitur *Sensationes* fiunt à nervorum contactu et compressione, hoc modo : omnes nervi canaliculo exilissimo pervii sunt, per quem tubulum Spiritus Animales ad omnes Corporis partes jugiter vehunt. Quando igitur aliquis nervus comprimitur, meatus ipsius coarctatur, vel penitus occluditur ; unde *Spiritus Animales* à cerebro defluentes per coarctatum ductulum pergere non possunt, ac proinde undulatione quadam refluere coguntur, & in cerebrum quodam modo respui, ibique sui nervi originem concutientes Animam eorum, quæ in Organa acta sunt, certiore & consciam efficiunt." To these views the above-quoted appreciation of Newton's principles is perfectly applicable. Whether they have "as yet been surpassed"—satisfactorily—is,

obviously, far too comprehensive a question to attempt to discuss here.

It would make this already long-drawn communication unnecessarily tedious to offer further comment on the *Evangelium Medici*, or the other works of Bernard Connor—of which every sentence scintillates with originality of thought and brilliancy of genius. The author *has* managed to focus in his pages views of, or allusions to, every great philosophical theory of the Universe and its constituent parts which has governed (or convulsed, or shattered) the world of thought down through all the centuries of scientific history. And it is no exaggeration to say that there is not a single sentence of the *Evangelium* which could not be appropriately made the inspiring text of a very considerable twentieth-century volume. Of course, the minutiae of anatomy, human and comparative, were not then known, as they have been within living memory. Chemical science was passing through its life-period of unkempt adolescence. [The sublime (and life-saving) truths of bacteriological pathology lay, of course, still veiled in the dim distance of a remote and unconceived future.] Innumerable details of scientific truth (and untruth) have since been revealed to the inquiring student, in every department of natural and physical science. But I venture to express the opinion that a close examination of Bernard Connor's book will prove to the satisfaction of any competent judge that if we have gained in wealth of accessible assets of scientific detail, we have fallen somewhat from the loftiness of conception and breadth of view which then distinguished the cultured type of intellect. In an age of universal education and universal suffrage, we cannot see the wood of learning on account of the crowding of the trees. And till a view from above and without becomes attainable, we cannot accurately rate the relative stature of the individual constituents, or arrive at a definitely reliable estimate regarding the proportion of the vast collection of learning which really represents true knowledge. And so I believe the question must rest for the present.

In bringing to a close this attempted appreciation of a meteoric Irish genius, I would express the view that the main lesson of its teaching is a suggestion of inspiration, of example, and of hope. These are surely supplied in the facts of the brief career of our brilliant fellow-countryman, whose intellectual achievements appear to have been limited only by time. *Inspiration* is indelibly

stamped on the record of the unfriended emigrant from the remote region of Kerry, who conquered the most powerful scientific giants of his generation, and captured the most exclusive scientific fortresses ; while securing and retaining the admiring friendship of the greatest and best monarch of his century. *Example*, of the best, is assuredly supplied in the means by which such results were obtained. And *hope* should never fade in presence of such models ; for the very least of us may achieve something, although the attainment be immeasurably removed from that of the master-genius ; of which a century rarely yields more than a single specimen in any special field of thought or action. Even domineering and unsympathetic Saxondom ranged its best intellect at the feet of the returned Kerry exile—in the twenty-ninth year of his age, while its bluest blood availed itself of his unrivalled professional skill. The same critically appreciative spirit of selection, which in our own generation placed a Clifford Allbutt at the head of the Medical School of the University of Cambridge, dictated the invitation to Bernard Connor which I gladly quoted at length. But its elder sister of Oxford is more closely linked with the story of Ireland's brightest intellectual associations : Alfred the Great selected an Irishman to found England's first University. This institution has in the twentieth century crowned its medical record by a display of appreciative taste and scientific wisdom—in the importation, from the opposite hemisphere of our ever-narrowing globe, of the now "brightest jewel on her [medical] zone." And I venture to express the concluding hope that the progressive Oxford of England's future democracy will be more vividly associated in the minds of the Irish historian and his patriotic readers with the name of Bernard Connor—ranged with those of the four cardinal pillars of that University's fame : Scotus Erigena ; Roger Bacon ; Thomas Linacre ; and—William Osler.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

[For four weeks ending Saturday, December 29, 1906.]

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending December 29, 1906, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 19.8 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,101,499. The deaths registered in each of the four weeks ended Saturday, December 29, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Dec. 8	Dec. 15	Dec. 22	Dec. 29			Dec. 8	Dec. 15	Dec. 22	Dec. 29	
22 Town Districts	20.4	19.7	22.8	19.8	20.7	Lisburn -	13.6	9.1	22.7	18.2	15.9
Armagh -	13.7	13.7	20.6	20.6	17.2	Londonderry	19.8	14.9	18.6	18.6	18.0
Ballymena	23.9	19.2	33.5	9.6	21.5	Lurgan -	39.8	17.7	13.3	17.7	22.1
Belfast -	19.8	16.8	18.1	18.4	18.3	Newry -	16.8	29.4	21.0	8.4	18.9
Clonmel -	20.5	15.4	20.5	41.0	24.3	Newtownards	5.7	34.3	17.2	34.3	22.9
Cork -	19.9	21.2	24.0	19.2	21.1	Portadown -	15.5	20.7	10.3	41.3	21.9
Drogheda -	24.5	8.2	16.3	32.7	20.4	Queenstown	19.8	19.8	13.2	19.8	18.2
Dublin (Reg. Area)	22.4	22.3	28.8	22.8	24.1	Sligo -	4.8	24.0	9.6	4.8	10.8
Dundalk -	12.0	4.0	27.9	16.0	15.0	Tralee -	21.1	10.6	15.9	10.6	14.6
Galway -	7.8	31.1	19.4	11.7	17.5	Waterford -	15.6	33.1	29.2	21.4	24.8
Kilkenny -	9.8	9.8	24.6	14.7	14.7	Wexford -	23.3	42.0	23.3	18.7	26.3
Limerick -	24.6	16.4	20.5	5.5	16.8						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, December 29, 1906, were equal to an annual rate of 0.9 per 1,000, the rates varying from 0.0 in sixteen of the districts to 4.0 in Dundalk—the 4 deaths from all causes registered in that district including one from measles. Among the 129 deaths from all causes registered in Belfast are 2 from whooping-cough, one from diphtheria, and 2 from diarrhoeal diseases. The 28 deaths from all causes registered in Cork include one from diphtheria; and included in the 3 deaths registered in Galway is one from whooping-cough.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, December 29, 1906, amounted to 224—122 boys and 102 girls; and the deaths to 170—89 males and 81 females.

DEATHS.

The registered deaths represent an annual rate of mortality of 23.4 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the Area, the rate was 22.8 per 1,000. During the fifty-two weeks ending with Saturday, December 29, the death-rate averaged 23.4, and was 2.0 below the mean rate for the corresponding portions of the ten years, 1896–1905.

The 170 deaths registered include 2 deaths from measles, one death from scarlet fever, 3 deaths from whooping-cough, one death each from diphtheria, *pyrexia* (origin uncertain), and enteric fever, and 2 deaths from diarrhoeal diseases. In each of the three preceding weeks, deaths from measles were 2, 0, and 2; deaths from scarlet fever were 0, 0, and 0; deaths from whooping-cough were 5, 4, and 2; deaths from diphtheria were 0, 5, and 2; deaths from *pyrexia* (origin uncertain) were 0, 0, and 0; deaths from enteric fever were 0, 0, and 2; and deaths

from diarrhoeal diseases were 2, 4, and 2. Two deaths were directly attributed to influenza.

Lobar pneumonia caused one death, broncho-pneumonia 6 deaths, and *pneumonia* (not defined) 5 deaths.

Of 32 deaths from all forms of tuberculous disease, 7 were from tubercular phthisis, 13 were returned as from *phthisis*, 6 were from tubercular meningitis, one from *tabes mesenterica*, and 5 from other forms of the disease. The deaths from all forms of the disease in the three preceding weeks numbered 35, 20, and 36, respectively.

There were 3 deaths from carcinoma, one death from sarcoma, and 6 deaths from cancer (undefined).

Four deaths of infants were ascribed to prematurity.

Diseases of the brain and nervous system caused 19 deaths, including 6 deaths of children under 5 years of age from *convulsions*—3 of these deaths being of infants under one year of age.

Twenty deaths were caused by diseases of the heart and blood vessels, and there were 17 deaths from bronchitis.

There were 5 accidental deaths.

In 12 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 7 children under 5 years of age (including 3 infants under one year old) and the deaths of 4 persons aged 60 years and upwards.

Fifty of the persons whose deaths were registered during the week were under 5 years of age (29 being infants under one year, of whom 6 were under one month old) and 39 were aged 60 years and upwards, including 15 persons aged 70 and upwards, of whom 4 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary

Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended December 29, 1906, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Dec. 8	-	•	•	5	-	-	4	-	8	7	7	-	•	•	•	26
	Dec. 15	-	•	•	3	1	-	13	-	1	6	10	-	•	•	•	34
	Dec. 22	-	•	•	7	-	-	2	-	-	10	15	1	•	•	•	35
	Dec. 29	-	•	•	2	-	-	2	-	6	4	8	-	•	•	•	21
Rathmines and Rathgar Urban District	Dec. 8	-	•	•	4	-	-	-	-	-	1	-	-	•	•	•	5
	Dec. 15	-	•	•	3	-	-	-	-	-	-	-	-	•	•	•	3
	Dec. 22	-	•	•	1	-	-	1	-	-	-	1	-	•	•	•	3
	Dec. 29	-	•	•	-	-	-	-	-	-	1	-	-	•	•	•	1
Pembroke Urban District	Dec. 8	-	2	-	-	-	-	1	-	-	1	-	-	•	-	-	4
	Dec. 15	-	4	-	-	-	-	-	-	-	1	1	-	•	2	-	8
	Dec. 22	-	-	-	-	-	-	-	-	-	-	-	-	•	-	-	4
	Dec. 29	-	-	-	-	-	-	-	-	-	-	-	-	•	3	-	2
Blackrock Urban District	Dec. 8	-	•	•	2	-	-	-	-	-	-	-	-	•	•	•	2
	Dec. 15	-	•	•	4	-	-	-	-	-	-	-	-	•	•	•	4
	Dec. 22	-	•	•	5	-	-	-	-	-	-	-	-	•	•	•	5
	Dec. 29	-	•	•	4	-	-	-	-	-	-	-	-	•	•	•	4
Kingstown Urban District	Dec. 8	-	•	•	1	-	-	1	-	-	-	-	-	•	•	•	2
	Dec. 15	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Dec. 22	-	•	•	1	-	-	-	-	-	1	-	-	•	•	•	2
	Dec. 29	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
City of Belfast	Dec. 8	-	•	•	19	-	-	9	1	4	4	10	-	•	•	•	47
	Dec. 15	-	•	•	17	-	-	6	1	4	2	9	1	•	•	•	40
	Dec. 22	-	•	•	25	-	-	5	-	1	4	7	1	•	•	•	43
	Dec. 29	-	•	•	20	-	-	8	1	1	4	14	-	•	•	•	48

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended Saturday, December 29, 1906, 5 cases of measles were admitted into hospital, 14 patients were discharged, there was one death, and 18 cases remained under treatment at its close.

Ten cases of scarlet fever were admitted to hospital, 15 were

discharged, and 73 cases remained under treatment at the close of the week. This number is exclusive of 12 convalescents under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

One case of typhus was admitted to hospital, and 2 cases remained under treatment at the close of the week.

Seven cases of diphtheria were admitted to hospital, 5 were discharged, there was one death, and 23 patients remained under treatment at the close of the week.

Three cases of enteric fever were admitted to hospital, 4 were discharged, there was one death, and 34 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 11 cases of pneumonia were admitted to hospital, 5 were discharged, and 22 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, December 29, in 76 large English towns, including London (in which the rate was 20.4), was equal to an average annual death-rate of 19.7 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 19.0 per 1,000, the rate for Glasgow being 19.9 and that for Edinburgh 17.7.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, M.D., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended December 29. From this Report it appears that of a total of 44 cases notified 24 were diphtheria, one membranous croup, 10 scarlet fever and 9 erysipelas. Among the 327 cases of infectious diseases in hospital at the close of the week were 128 cases of scarlet fever, 68 of diphtheria, one case of membranous croup, 45 cases of measles, 20 of erysipelas, 17 of enteric fever, and 6 of whooping-cough.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of December, 1906.

Mean Height of Barometer,	-	-	29.990 inches.
Maximal Height of Barometer (21st, at 9 a.m.),	30.584	„	
Minimal Height of Barometer (26th, at 9 a.m.),	29.280	„	
Mean Dry-bulb Temperature,	-	-	40.9°.
Mean Wet-bulb Temperature,	-	-	39.1°.
Mean Dew-point Temperature,	-	-	36.7°.
Mean Elastic Force (Tension) of Aqueous Vapour	.223	inch.	
Mean Humidity,	-	-	85.2 per cent.
Highest Temperature in Shade (on 5th),	-	-	55.9°.
Lowest Temperature in Shade (on 30th),	-	-	23.1°.
Lowest Temperature on Grass (Radiation) (30th),	-	-	18.9°.
Mean Amount of Cloud,	-	-	71.5 per cent.
Rainfall (on 18 days),	-	-	1.806 inches.
Greatest Daily Rainfall (on 15th),	-	-	.372 inch.
General Directions of Wind,	-	-	W., S.W., N.W.

Remarks.

This was a month of average but singularly unsteady temperature, with frequent but not heavy precipitation, and an overwhelming prevalence of winds from westerly points. The most interesting features were—(1) the high temperature which at first accompanied an anticyclone of great intensity and unusual staying power in the third week; (2) the rigorous frost which developed over Central Europe as this anticyclone spread westward to the British Isles; and (3) the extraordinary snow-storm which raged on Christmas Night and during the following days all over North-Western Europe. The frost which followed this snow-storm was very severe, if fleeting—at Birr Castle the screened thermometer sank to 11° on the early morning of Saturday, the 29th; at Aberdeen, the maximum on the 30th was 20°, and at Nairn a minimum of 9° was recorded in the early morning hours of Monday, the 31st.

In Dublin the arithmetical mean temperature (41.6°) was 0.1° below the average (41.7°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 40.9°. In the forty-two years ending with 1906, December was coldest in 1878 (M.T. = 32.8°), and in 1874 (M.T. = 36.8°); warmest in 1898 (M.T. = 47.6°), and in 1900 and 1905 (M.T. = 47.1°).

The mean height of the barometer was 29.990 inches, or 0.115 inch above the corrected average value for December—namely 29.875 inches. The mercury rose to 30.584 inches at 9 a.m. of the 21st, and fell to 29.280 inches at 9 a.m. of the 26th. The observed range of atmospheric pressure was, therefore, 1.304 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 40.9°, or 5.8° below the value for November, 1906. Using the formula *Mean Temp. = Min. + (Max. — Min. × .52)*, the value was 41.8° or 0.1° below the average mean temperature for December, calculated in the same way, in the thirty years, 1871–1900, inclusive (41.9°). The arithmetical mean of the maximal and minimal readings was 41.6°, compared with a thirty years' average of 41.7°. On the 5th the thermometer in the screen rose to 55.9°—wind, W.; on the 30th the temperature fell to 23.1°—wind, calm. The minimum on the grass was 18.9° on the 30th. There were 6 days of frost in the screen, and 15 nights of frost on the grass were recorded.

The rainfall was 1.806 inches, distributed over 18 days. The average rainfall for December in the thirty-five years, 1866–1900, was 2.390 inches, and the average number of rainy days was 18. The rainfall, therefore, was below, while the rainy days were equal to, the average. In 1876 the rainfall in December was very large—7.566 inches on 22 days. In 1868 (which was otherwise a fine and dry year), 4.749 inches fell on as many as 27 days. On the other hand, in 1867, only .771 inch was measured on 13 days; in 1885, only .742 inch on 10 days; in 1892, only .795 inch on 10 days; and in 1871, only .797 inch on 15 days. In 1905, 1.264 inches of rain fell on 13 days.

High winds were noted on 13 days, and attained the force of a gale on four occasions—the 2nd, 4th, 5th and 12th. The atmosphere was more or less foggy in Dublin on the 7th, 10th, 15th, 18th, 21st, 22nd, 29th and 30th. Hail fell on the 14th, 26th, and 27th; snow or sleet, on the 5th, 12th, 13th, 14th, 26th, 27th, 28th and 30th. A solar halo was seen on the 1st and again on the 29th, and lunar halos appeared on the 27th, 29th, 30th and 31st.

The rainfall in Dublin during 1906 amounted to 22.807 inches on 203 days, compared with 25.277 inches on 193 days in 1905, 2.180 inches on 189 days in 1904, 31.601 inches on 228 days in

1903, 29.375 inches on 203 days in 1902, 26.075 inches on 179 days in 1901, 34.338 inches on 216 days in 1900, only 16.601 inches on 160 days in 1887, and a thirty-five years' average of 27.770 inches on 198 days.

Mr. Thomas H. Hill, Sch., reports that, at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 29.987 inches, the range of atmospheric pressure being from 30.578 inches at 9 a.m. of the 21st to 29.273 inches at 9 a.m. of the 26th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 41.3°. The arithmetical mean of the daily maximal and minimal temperatures was 41.4°. The screened thermometers rose to 55.4° on the 4th, and fell to 21.5° on the 30th. On this latter date the grass minimum was 11.9°. On the 7th the black bulb in *vacuo* rose to 67.7°. Rain fell on 17 days to the amount of 1.778 inches, the greatest fall in 24 hours being .388 inch on the 15th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 19.9 hours, of which 3.7 hours occurred on the 13th. The mean daily sunshine was 0.6 hour. The mean temperature of the soil at 9 a.m. at a depth of one foot was 42.7°; at a depth of 4 feet it was 46.7°.

Mr. R. Cathcart Dobbs, J.P., reports that, at Knockdolian, Grevstones, Co. Wicklow, the rainfall in December was 1.860 inches on 11 days, compared with 1.405 inches on 10 days in 1905, 1.890 inches on 15 days in 1904, 2.830 inches on 18 days in 1903, and 2.920 inches on only 11 days in 1902. Of the total amount .800 inch fell on the 15th. From January 1st to December 31st, 1906, rain fell at Knockdolian on 151 days, to the total amount of 24.488 inches. The corresponding figures for 1896 were 36.102 inches on 169 days; 1897, 42.885 inches on 210 days; 1898, 30.546 inches on 171 days; 1899, 36.690 inches on 182 days; 1900, 42.716 inches on 191 days; 1901, 34.750 inches on 166 days; 1902, 40.021 inches on 168 days; 1903, 35.900 inches on 211 days; 1904, 25.462 inches on 175 days; and 1905, 28.920 inches on 160 days.

Miss Muriel E. O'Sullivan returns the rainfall at White Cross, Stillorgan, Co. Dublin, at 1.854 inches on 17 days, .505 inch being measured on the 15th, and .420 inch on the 11th. The total rainfall for the year was 23.386 inches on 197 days.

Mr. T. Bateman reports that the rainfall at the Green, Malahide, Co. Dublin, was 2.087 inches on 15 days. The greatest fall in 24 hours was .460 inch on the 11th. The mean shade temperature was 37.2°, the extremes being—highest, 53° on the 4th; lowest, 18° on the 28th and 29th. The total rainfall for 1906 was 22.788 inches on 190 days.

The Rev. Arthur Wilson, M.A., reports that rain fell on 21 days at the Rectory, Dunmanway, Co. Cork, to the amount of 3.19 inches. The heaviest falls were .58 inch on the 11th, .42 inch on the 14th, .41 inch on the 12th, and .39 inch on the 25 h. The rainfall for the year was 50.55 inches on 228 days. In 1905 it had been 54.72 inches on 211 days.

Dr. Christopher Joynt, F.R.C.P.I., recorded 1.820 inches of rain on 18 days at 21 Leeson Park, Dublin. On the 11th, .390 inch was recorded, and on the 15th the measurement was .370 inch. The total rainfall for the year was 23.112 inches on 198 days.

Mr. Robert O'B. Furlong, C.B., returns the rainfall at Cloneevin, Killiney, at 2.12 inches on 18 days. The maximal fall in 24 hours was .60 inch on the 15th. The average December rainfall of the 21 years (1885–1905) was 2.357 inches on 17 days. Since January 1, 1906, 22.34 inches of rain have fallen at this station on 201 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 17 days to the amount of 1.79 inches, .45 inch being measured on the 12th. Temperature ranged from 55.0° on the 4th to 22.0° on the 30th. The mean shade temperature was 41.2° Fahrenheit. In 1903, 2.21 inches of rain fell on 20 days; in 1904, 2.14 inches on 21 days, and in 1905, 1.71 inches on 16 days. The total rainfall in 1906 at Lynton was 25.61 inches on 205 days.

At Cork, according to Mr. W. Miller, the December rainfall was 1.75 inches on 19 days, the measurement being 2.70 inches less than the average. The greatest daily rainfall was .30 inch on the 10th, and again on the 15th. The year's rainfall at this station was 29.83 inches on 192 days, the total being 8.37 inches under the average, and the rainy days being 5 in defect.

The rainfall at the Ordnance Survey Office, Phoenix Park, Dublin, was 2.097 inches on 19 days, the maximum in 24 hours being .465 inch on the 15th. The total amount of sunshine was 39.9 hours, the largest daily amount was 5.5 hours on the 7th.

The thermometer fell to 15.0° in the screen on the night of the 30th.

Dr. J. Byrne Power, D.P.H., F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 42.1° , being 1.1° below the average for December during 19 previous years (1873-83 and 1898-1905); the extremes were—highest, 56° , on the 17th and 18th; lowest, 22° , on the 30th. A sharp frost prevailed during the 5 last days of the month, the mean temperature for that period being 32.7° , an extraordinary low mean for Kingstown. The mean for the month at Bournemouth was 38.9° , the extremes being—highest, 58° , on the 16th; lowest, 24° , on the 31st; the thermometer registering below 32° on 10 days, whereas at Kingstown it fell below 32° on only the 5 days mentioned. The mean range of temperature was 8.3° at Kingstown; at Bournemouth it was 10.6° . The mean temperature of the sea at Sandycove bathing-place was 44° , being 2.1° below the average during the previous 8 years. The average relative humidity was 90 per cent., being 5 per cent. below the average for the month during the previous 5 years. The rainfall was 1.70 inches on 17 days, being 0.5 inch below the average during 16 previous years (1873-83 and 1901-05). The annual rainfall for 1906 was 20.84 inches on 190 days, being 7.05 inches below the average for the above 16 previous years, and the absolute lowest for any of those years excepting that for 1904, which was only 20.01 inches. The total duration of bright sunshine was 50.9 hours, being 4.1 hours above the average for the month during the previous 5 years, as compared with 41.9 hours at Southport, and 76 hours at Bournemouth.

RAINFALL IN 1906.

*At 40 Fitzwilliam Square, Dublin.**Rain Gauge :—Diameter of Funnel, 8 in. Height of top—Above ground, 1 ft. 4 in. ; above sea level, 50 ft.*

Month	Total Depth	Greatest Fall in 24 Hours		Number of Days with .01 or more recorded
		Inches	Date	
January, -	4.127	.638	2nd	22
February, -	1.644	.383	22nd	20
March, -	1.520	.478	10th	17
April, -	1.829	.604	29th	18
May, -	2.472	.500	19th	20
June, -	1.049	.169	21st	12
July, -	1.023	.282	1st	13
August, -	1.761	.382	3rd	17
September, -	.696	.197	11th	7
October, -	3.318	.499	20th	22
November, -	1.562	.264	4th	17
December, -	1.806	.372	15th	18
Total, -	22.807	.638*	Jan. 2nd	203

* Maximum.

The rainfall was 22.807 inches, or 4.963 inches less than the average annual measurement of the thirty-five years, 1866-1900, inclusive—viz., 27.770 inches.

It is to be remembered that the rainfall in 1887 was very exceptionally small—16.601 inches—the only approach to this measurement in Dublin being in 1870, when only 20.859 inches fell ; in 1884, when the measurement was 20.467 inches ; and in 1883, with its rainfall of 20.493 inches. In ten of the thirty-five years in question the rainfall was less than 26 inches.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32.966 inches—or as nearly as possible double the fall of 1887—fell on 220 days. In 1900 the rainfall was 34.338 inches, or 6.568 inches in excess of the average for the thirty-five years, 1866-1900. Only twice since these records commenced has the rainfall in Dublin exceeded that of 1900—namely, in 1872, when 35.566 inches fell on 238 days, and in 1880, when 34.512 inches were measured on, however, only 188 days. In 1905 the rainfall was 25.277 inches on 193 days.

In 1906 there were 203 "rain-days" or days upon which not

less than .005 inch of rain (five-thousandths of an inch) was measured. This was 5 over the average number of rain-days, which was 198 in the thirty-five years, 1866-1900, inclusive. In 1868 and 1887—the warm, dry years of recent times—the rain-days were only 160, and in 1870 they were only 145.

In 1905 the rainfall in 24 hours, from 9 a.m. to 9 a.m., on only one occasion exceeded one inch—namely, on August 25th, but it then amounted to 3.436 inches, the greatest daily fall registered in Dublin since these records began. On no occasion in 1906 did one inch of rain fall on a given day in Dublin. In 1894 falls of upwards of an inch of rain in 24 hours were recorded on 4 occasions—viz., May 15th (1.330 inches); July 24th (1.560 inches); August 25th (1.369 inches); and October 23rd (1.042 inches). In 1895, 1.802 inches fell on January 12th; 1.014 inches on July 24th; and 1.256 inches on July 25th. In 1896, 1.563 inches fell on July 8th; 2.020 inches on July 24th; and 1.388 inches on December 8th. In 1897, 1.166 inches fell on September 1st. In 1898, on November 23rd, 1.732 inches were measured. In 1899, the rainfall exceeded one inch on 4 occasions—viz., July 11th (1.402 inches); August 5th (2.227 inches); September 30th (1.042 inches, and December 28th (1.129 inches). In 1900, as in 1899, the rainfall exceeded one inch on 4 occasions—namely, July 27th (1.783 inches); August 2nd (2.135 inches); November 6th (1.103 inches); and November 27th (1.126 inches). In 1901, the rainfall only once exceeded one inch, but on that occasion (November 11th) the measurement was 2.037 inches. In 1902, 1.342 inches fell on July 25th, and 2.075 inches on September 2nd. In 1903 the maximal daily rainfall was .966 inch on September 10th. In 1904, 1.092 inches fell on May 31st, and 1.197 inches on September 12th. The excessive rainfall on August 25th, 1905, is especially noteworthy—it amounted to 3.436 inches in Dublin (Fitzwilliam Square). It was the ninth occasion only since 1865—that is, in 41 years—upon which 2 inches have been measured in Dublin at 9 a.m. as the product of the preceding 24 hours' precipitation. The previous excessive falls were—August 13th, 1874 (2.482 inches); October 27th, 1880 (2.736 inches); May 28th, 1892, 2.056 inches; July 24th, 1896, 2.020 inches; August 5th, 1899 (2.227 inches); August 2nd, 1900 (2.135 inches); November 11th, 1901 (2.037 inches); and September 2nd, 1902 (2.075 inches). On no previous occasion within the past 40 years had 3 inches or upwards been measured.

Included in the 203 rainy days in 1906 are 24 on which snow or sleet fell, and 31 on which there was hail. In January hail was observed on 3 days, in February on 5 days, in March on 6 days, in April on 9 days, in May and in November on 2 days, in August on one day, and in December on 3 days. Snow or sleet fell on 3 days in January, 5 days in February, 6 days in March, one day in April and in November, and 8 days in December. Thunderstorms occurred twice in August and once in November (4th). Lightning was seen once in June and July, and twice in January and October.

The rainfall in the first six months was 12.641 inches on 109 days. The rainfall exceeded 4 inches in January (4.127), and was 3.318 inches in October.

The rainfall was distributed quarterly as follows:—7.291 inches fell on 59 days in the first quarter, 5.350 inches on 50 days in the second, 3.480 inches on 37 days in the third, 6.686 inches on 57 days in the fourth and last quarter.

More or less fog prevailed on 51 occasions—3 in January, 5 in February, 3 in March, 5 in April, 1 in May, 3 in August, 11 in September, 7 in October, 5 in November, and 8 in December. High winds were noted on 118 days—15 in January, 12 in February, 13 in March, 7 in April, 6 in May, 4 in June, 9 in July, 11 in August, 4 in September, 11 in October, 13 in November, and 13 in December. The high winds amounted to gales (force 7 or upwards, according to the Beaufort scale) on 30 occasions—7 in January, 4 in February, 3 in March, 2 in May, 1 in June, 2 in July, 1 in August, 1 in October, 5 in November, and 4 in December.

Solar halos were seen on 27 occasions, a lunar halo on 12 nights. Aurora borealis was seen on the evenings of September 22 and December 16.

Mr. Robert O'Brien Furlong, M.A., C.B., writes relative to the rainfall at Cloneevin, Killiney:—The total number of inches measured in 1906 was 22.34 inches on 201 days. This is one of the lowest yearly rainfalls recorded here. The lowest was in 1887 when 17.64 inches were measured. In 1890 the amount was 19.93 inches, and in 1893, 18.05 inches.

The rainfall of 1906 is 5.66 inches below the average of 21 years (1885–1905)—viz., 28.009 inches.

The number of days on which .01 inch or upwards fell—viz., 201—is 16.6 in excess of the average for the same period—viz., 184.4 days. The number of rainy days has been exceeded in

only 3 years—viz., 1897=204 days; 1900=205; and 1903=219.

The greatest amount measured in any month during 1906 was 4.08 inches on 22 days in January—the smallest .34 inch on 6 days in September.

The greatest number of days on which rain fell in any month was 24 in October—the lowest was 6 in September.

The heaviest fall in 24 hours was on January 2nd, when .88 inch fell.

Snow, sleet or hail was observed on 23 days.

There was an absolute drought from September 16th to 29th, both included.

Abstract of Meteorological Observations taken at Dublin (40 Fitzwilliam Square, West) during the Year 1906.

MONTH	Abs. Max.	Date	Abs. Min.	Date	Mean Daily Max.	Mean Daily Min.	Rainfall	Rain Days	Mean Height of Barometer	Highest Pressure	Date	Lowest Pressure	Date	Prevailing Winds
January	54.9	28th	29.0	23rd	48.5	39.2	4.127	22	29.948	30.636	22nd	29.182	9th	W., S.W.
February	50.1	1st	29.1	12th	45.3	34.0	1.644	20	29.764	30.415	7th	28.558	10th	W.
March	59.9	16th	31.9	8rd	50.0	38.7	1.520	17	30.923	30.485	19th	28.924	11th	W.S.W., N.E.
April	63.5	12th	32.0	19th	53.5	38.3	1.829	18	30.104	30.700	9th	29.105	29th	N.W., W.
May	68.9	28th	35.0	10th	57.8	45.6	2.472	20	29.82	30.126	14th	29.485	2nd	N.N.E., S.W., S.
June	76.2	21st	42.7	30th	66.6	52.6	1.949	12	30.139	30.380	4th	29.442	1st	N.E., N.W.
July	76.5	22nd	47.4	4th	67.7	53.7	1.023	13	29.991	30.329	9th	29.601	18th	W., N.W., S.W.
August	77.0	31st	49.1	19th & 30th	70.0	56.4	1.761	17	29.915	30.350	28th	29.421	13th	W., S.W., E.
September	77.8	2nd	41.0	26th	64.4	49.8	.696	7	30.201	30.602	27th	29.464	14th	W., N.W.
October	65.1	6th	32.9	20th	56.8	45.5	3.318	22	29.739	30.391	25th	29.264	29th	W., S.W.
November	64.4	24th	33.0	20th	52.7	42.4	1.562	17	29.355	30.535	11th	29.093	18th	W., S.W.
December	55.9	5th	23.1	30th	46.2	37.0	1.806	18	29.990	30.584	21st	29.280	26th	W., S.W., N.W.
Extremes, Totals, and Means	77.8	Sept. 2nd	23.1	D.c. 30th	56.6	44.4	22.807	203	29.948	30.700	April 9th	28.568	Feb. 10th	W., S.W., N.W.

50.5°

January 6, 1907.

JOHN WILLIAM MOORE, B.A., M.D. Dublin; D.Sc. Oxon.; F.R.C.P.I.;
F. R. Met. Soc.

PERISCOPE.

PYTHOGENIC PNEUMONIA.

UNDER this heading, Dr. H. Freeth, of Llangollen, reports the following very interesting clinical experience in the *British Medical Journal* for January 5, 1907:—"The following instance of so-called 'pythogenic pneumonia,' which recently occurred in my practice, appears worth recording: On October 1st, 1906, I saw Mrs. D., aged twenty-eight. She was suffering from severe catarrhal sore throat, presenting all the appearances of the ordinary 'hospital sore throat,' and her temperature was 104° F. Rain had fallen heavily on that day after a long spell of dry weather. I learnt that the water-supply to the house had given out some days previously, and that the closets had not been flushed for three days. The next day Mr. D., aged thirty, was in bed, with a temperature of 102° F., and all the symptoms of pneumonia. On the following day a large consolidated patch, corresponding to the lower lobe of the right lung, could be distinctly made out. The course of his attack was uneventful, the temperature falling gradually and remaining below 99° F. after the ninth day. In the meantime, Mrs. D.'s throat had got well, and she had helped to nurse her husband until October 20th, when she also was attacked with pneumonia at the base of the right lung, her temperature rising rapidly to 105° F. on October 22nd. On October 26th the left lung became affected, delaying her recovery till November 2nd, from which date her temperature remained below 100° F., and she rapidly picked up. The interest of these events seems to be (1) the almost simultaneous infection of Mrs. D.'s throat and Mr. D.'s lung at a time when the house drains were dry and foul, favouring the opinion that the nature of the infection was the same in both (septic?), and fixing the incubation period of the pneumonia to within three days; (2) the infectiousness of the disease, as proved by Mrs. D.'s attack, unless it be supposed that her system had been infected from her throat, and that the disease had developed later in the lung—a supposition, I think, rendered of little value by the fortnight of health she enjoyed between the two complaints; (3) the influence of insanitary conditions as a source of the infection, lending weight to the term 'pythogenic pneumonia.'"

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

MARCH 1, 1907.

PART I.

ORIGINAL COMMUNICATIONS.

ART. V.—*The Treatment of Gastric Ulcer.** By JAMES LITTLE, M.D. Edin. & Dubl. ; Regius Professor of Physic, University of Dublin ; Physician to the Adelaide Hospital.

THE Council of the Medical Section of the Academy have done me the honour of asking me to open this discussion on the treatment of ulcer of the stomach by describing what, according to my experience, can be done for patients suffering from gastric ulcer by the therapeutic measures which are at the disposal of the physician. I will not occupy longer than the prescribed time, but would like briefly to allude to a few preliminary considerations.

During my practice before gastric ulcer was made a disease for surgical interference all my knowledge of the appearance of gastric ulcers was gained by seeing them in cases which had become fatal from perforation. In other words, I cannot recollect a case in which gastric ulcer ended fatally either by gradual exhaustion or by hæmorrhage. I have several times seen a young woman who seemed just about to die from bleeding, but I cannot recollect one who did die. Since the

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, January 18, 1907.

treatment of gastric ulcers by surgical methods has been introduced all my opportunities of seeing them have been in the theatre.

Two kinds of gastric ulcer are described in books. The ulcer with thickened edges and general induration of the stomach wall surrounding it. I can only recollect seeing three such ulcers. They all occurred in men, and in men past middle life. In all three there was a history of gastric symptoms extending over many years, and they were all fatal by perforation. In two of the cases there had occurred, immediately before death, rupture of a sac formed long previously, in consequence of perforation and the limitation of extravasation of the contents of the stomach by adhesions. These ulcers appear to me due to long-continued gastritis, the result of an unsuitable dietary, and the want of any treatment at a time when treatment might be effective.

The ulcer more commonly seen is entirely different; it is usually about the size of a shilling; it is not surrounded by thickening; its edges are sharply cut, and, as it deepens, it gradually narrows until it perforates the peritoneum by a small rent. There is no more certain fact in clinical medicine than that these ulcers, in the vast majority of instances, occur in chlorotic young women. How the original lesion of the mucous membrane is brought about we really do not know, in spite of the various ingenious explanations which have been suggested; but there cannot, I think, be any doubt that the obstacles to the healing of such ulcers are the movements of the stomach and the hyperacidity of its secretions. Inasmuch as we know that both the movements of the stomach and the secretion of hydrochloric acid are greatly increased by the presence of food, we can easily understand the importance of putting little food into a stomach which is the seat of an ulcer.

It is sometimes easy enough to know that a young woman has ulcer of the stomach, but occasionally the diagnosis is uncertain. I cannot recollect to whom we owe the aphorism that we should never make the diagnosis of ulcer of the stomach unless the patient has vomited blood, nor of cancer of the

stomach unless we can feel the tumour, but I think it puts the case very fairly. If a young girl, chlorotic, or, though not chlorotic, thin and delicate, has pain after food, a pain which is severe in proportion to the solidity of the food, and which comes on almost immediately after the food has been swallowed, and which is referred to the epigastrium and to the space between the left scapula and the spine, about the level of the tenth dorsal vertebra ; if the pain is usually terminated by the vomiting of very acid gastric contents, and if on one or more occasions she has vomited blood, the diagnosis of gastric ulcer is almost certain. There is usually tenderness as well as pain, and there is one kind of tenderness which, for the purpose of suggesting treatment, is important ; I allude to exquisite tenderness, so that even the lightest touch or the pressure of the night-dress causes pain. When this is due to gastric ulcer I fancy it indicates the existence of an ulcer on the anterior wall which has set up localised peritonitis, and probably has almost perforated the peritoneal coat of the stomach. But I think such exquisite tenderness is occasionally due not to ulcer, but to an hysterical condition, at least I have seen two cases in which the phenomenon was present, with persistent vomiting, in both of which all the surrounding circumstances seemed to point distinctly, not to ulcer, but to hysteria. We must not too readily accept the statement that the patient has vomited blood ; persistent vomiting nearly always produces a streak of bloody mucus, and I have sometimes heard this described as bloody vomit ; the vomit which is characteristic of ulcer is pure blood, and in considerable quantity, from a wineglassful to one or two pints.

I do not know whether it was the intention of the Medical Section to include ulcer of the duodenum with ulcer of the stomach. Although it is generally considered as due to the same conditions, since it almost invariably occurs in the first portion of the duodenum, which is functionally a portion of the stomach, there are several circumstances which appear to me to show it is of an essentially different nature. Gastric ulcer is seldom seen except in hospital patients—namely, in

young women between twenty and thirty; duodenal ulcer, according to my experience, is very rarely seen in hospital, but in private in men over forty; the pain does not come on for two or three hours after the meal, and seldom goes out behind. Duodenal ulcer is a far less manageable disease than gastric ulcer. Within the past five years I have lost three patients by perforation, who had all been confined to bed for weeks and most carefully fed, a calamity which I have never known occur in a patient with gastric ulcer who was similarly cared.

Some fifteen years ago a woman was admitted to hospital, under my care, with very characteristic symptoms of gastric ulcer. She was put to bed; she was fed on milk; her bowels were kept open by enemata; small blisters were applied over the epigastrium, and she was put on Dr. Hudson's white mixture. In about five weeks she was able to return to the country, and I felt that Dr. Hudson's mixture had once more justified my admiration of it. In two years the patient returned with the former symptoms; she was put to bed on the same diet, and I gave her the "three soda mixture," which about that time I had begun to employ. She was again able to return to the County Down in about five weeks, and I felt that my "three soda mixture" was as good as Dr. Hudson's *mistura alba*. In a year she returned again. This time, instead of the "three soda mixture," she got camphor water, and she was cured just as soon.

With some exceptions, to which I will allude, the remedy for gastric ulcer is confinement to bed. If the patient is confined to bed there is little danger of perforation or of hæmorrhage, and if she is properly fed it seldom matters whether she gets any drug.

I have read the elaborate directions as to diet in some works, and particularly in some of the German special treatises which have been translated into English. I do not think they give us any useful information. The vast majority of sufferers from gastric ulcer belong to a humble walk in life, and have been accustomed to simple fare. Milk suits the majority of sufferers from gastric ulcer; often raw milk disagrees, but

boiled milk, milk mixed with a very small quantity of arrow-root—which prevents the formation of masses of casein—peptonised milk, or the old-fashioned milk and lime-water, will agree. But some patients abhor milk, and then beef tea, mutton tea, triple broth,^a or in bad cases essence of chicken^b and beef tea rapidly cooled on ice^c will agree. According to my experience the addition of a small quantity of Groult's tapioca is soon tolerated; Horlick's malted milk, and Benger's food, and Plasmon biscuits are also serviceable; then whiting or plaice, and very soon chicken or mutton. Freshly made weak tea with cream may be given. Cream, indeed, generally agrees admirably. To the very few private patients I have treated for gastric ulcer I gave appropriate delicacies—sweetbread, lamb's brain and caramel pudding. In every case, when butcher's meat is begun, care should be taken that it has been long enough kept to be tender.

I have alluded to the keeping of the bowels open by enemata. Early, very early, in my professional life I had a patient with gastric ulcer, who suffered intense pain when she

^a Take half a pound of beef; half a pound of veal; flesh of half a chicken; cut these fine and pour on them one pint and a half of cold water, allow the whole to stand for three hours, and then simmer for half an hour.

^b Get a freshly-killed chicken, skin it and cut off the flesh, rejecting the bones, sinews, and fat; throw the pieces of flesh into a bowl of cold water. After a few minutes pick them out with merely as much water as adheres to them, and put them in a jam-pot, which should be covered with a sheet of paper in which a few holes should be pricked. Place the jam-pot in a saucepan of hot water; allow it to simmer for half an hour, and then pour off the juice, which will about fill a wineglass. Of this, two or three teaspoonfuls can be given as required.

^c Take two pounds of beef off the round, free it from all fat and skin, and mince it finely. Put it into a covered jar; pour over it half a pint of cold water. Put the cover on the jar and place it in a saucepan of hot water. Place the saucepan by the fire or on the hob until the contents of the jar have SIMMERED (not boiled) for half an hour. Have a tumbler or large cup surrounded by ice, and into this tumbler pour the extract from the jar, straining it through muslin as it passes. In a short time there will be a considerable deposit in the tumbler, which must not be disturbed. If the process has been properly conducted the supernatant fluid will be free from turbidity, and of a Madeira colour; and of this a wineglass may be taken at a time.

took purgative medicine. I thought there was an adhesion between the stomach and the transverse colon, and that it was the dragging of the adhesion during the peristalsis of the large bowel which caused such suffering. Patients often come into hospital with their colons loaded with hard lumps, and I am in the habit of refraining from purgatives by the mouth until these hardened scybala have been removed. After this has been done Carlsbad salt, or the imitation of Carlsbad salt made of chloride of sodium, carbonate of sodium and sulphate of sodium, is probably the safest aperient; but at this stage the patient usually needs iron, and I find the well-known mixture of sulphate of iron and sulphate of magnesium answers well.

There are cases, however, in which, in spite of confinement to bed and the clearing out of the bowels, pain continues on the introduction of food. These cases are few if the fluid be given in very small quantities and warm; hardly ever, in my experience, if the food be hot boiled milk and lime-water. If, however, it does, we should keep the patient on nutritive injections for a few days. If pain continues I then apply small blisters—blisters the size of a florin—over the painful region. I think the use of blisters must be generally given up, for I do not see them recommended in the text-books, and this leads me again to allude to the cases in which there is exquisite tenderness, so that the least touch gives pain. A blister always does harm in such a case, but the application of four leeches gives immediate relief. Internal remedies also relieve the pain; one of the best is Dr. Hudson's white mixture, or, as he himself always maintained, Wilson Philip's white mixture, for he said he learned it from the celebrated Wilson Philip.* Sometimes I have added to each dose ten minims of liquor morphinæ hydrochloridi, and sometimes one-sixth of a grain of hydrochloride of cocaïn. A very convenient combination

* Dr. Hudson's *Mistura Alba* (*slightly modified*):—Potassii nitratis, gr. xii; Bismuthi subnitratis, ʒi ss; Acidi hydrocyanici diluti, min. xxxvi; Acidi nitrici diluti, ʒi; Mucilaginis acaciæ recentis, ʒi; Aquæ chloroformi, ad ʒvi. Shake the bottle, and give half an ounce thrice daily half an hour before food.

is one of prussic acid, liquor calcis saccharatus and liquor bismuthi. This was what the late Sir Dominic Corrigan usually gave. I have found milk of magnesia very useful, and an admirable powder is one which I learned from Sir William Whittle—it consists of hydrochloride of morphin, gr. $\frac{1}{8}$; Finkler's papain, 3 grains; carbonate of bismuth, 5 grains; bicarbonate of sodium, 15 grains; and heavy carbonate of magnesium, 20 grains.

We must remember that the richer the patient's blood is the sooner will the ulcer heal, and that therefore, although we must do nothing and give nothing which might cause a risk of perforation or hæmorrhage, the sooner we can give food which will make blood the better, and so long as the patient is in bed, and that we try at first very small quantities, we may reach solid food sooner than is generally supposed; and one of the first articles to agree, in my experience, is finely scraped and pounded raw beef which has been some days killed.

The three events which gravely compromise the safety of the patient who suffers from gastric ulcer are: persistent vomiting, hæmorrhage, and perforation. The terms of our discussion forbid the consideration of the last, and therefore I shall devote what remains of my time to the other two.

Persistent sickness and vomiting are occasionally difficult to control. Looking back on the cases I have seen, I would say the first thing is generally to try for twenty-four hours to nourish the patient entirely by rectal feeding; but this does not always succeed, and, indeed, I have not the faith in rectal feeding which is entertained by some. Absolute abstinence from milk is, I think, the most important advice. I have seen intractable vomiting cease when milk was given up.

The next thing which all the nurses who have worked with me have been taught to do, not only in the vomiting of gastric ulcer, but in urgent sickness arising under other conditions, is to give half a teaspoonful of bicarbonate of sodium in half a tumbler of water, as hot as is comfortable, to the patient; if the first draught of this kind is thrown up I give it again, but if this fails I try another remedy.

Essence of chicken in teaspoonful doses often stops vomiting ; a pill containing one-sixth of a grain of cocain is sometimes successful ; my "three soda mixture" I have known succeed when other things failed ; five minims of tincture of nux vomica, or a teaspoonful of granular citrate of caffen in a claretglassful of water, or a morsel of stale bread washed down by a wineglassful of champagne are all remedies of which I have had actual and favourable experience. If the patient is not only sick, but restless and sleepless, I have given one-sixth of a grain of sulphate of morphin with one two-hundredth of a grain of sulphate of atropin hypodermically, and I do not remember any case in which the morphin subsequently caused its own peculiar nausea.

Of some remedies frequently used, such as ice, creosote, and prussic acid, I have no favourable experience.

In the beginning of this communication I stated that I had never seen a death in gastric ulcer due to hæmorrhage, and I therefore think that such remedies as surgical interference for hæmatemesis can seldom be required. What I have seen most useful was either a hypodermic of morphin and atropin or the introduction of a quarter of a grain of morphin into the rectum. The use of morphin after a severe hæmorrhage, however, I think, requires caution (many years ago I saw a case in which death seemed immediately due to a not very large injection of morphin in a patient who had vomited a great quantity of blood, owing to cirrhosis of the liver), just as the use of morphin and of hyoscine requires more than usual caution when a patient, from any cause, has had very little food. The morphin, rigid quiet, and rectal feeding have been the means I have for many years employed, and since I saw the value of adrenalin in the hands of my surgical colleagues I have always given twenty minims of Parke Davis's chloride of adrenalin in a teaspoonful of cold water. It seemed to me useful. Another remedy in which I still retain some faith is turpentine, ten or twenty minims may be given in capsule.

With regard to the administration of ice and the injection of ergotin I cannot conceive their doing anything but harm.

I look forward with great pleasure, as I am sure everyone in this hall does, to hearing from Sir Charles Ball an account of the methods he has been led to employ in the treatment of ulcer of the stomach, but I may take the liberty of saying that I think we physicians should make a great effort to cure cases of gastric ulcer without seeking surgical aid. In saying this I desire, of course, to exempt cases where perforation has occurred, and probably I should also exempt cases where we have to deal with a greatly dilated stomach, and where we are able with comparative certainty to say that the dilatation of the stomach is due to the cicatrization of an ulcer at the pylorus; but I venture to think such cases are not common. The causation of dilatation of the stomach is obscure, and in cases which we might reasonably attribute to pyloric narrowing we are sometimes mistaken. Some four years ago a young man, with very dilated stomach, was admitted to the Adelaide Hospital; there was a long history of gastric pain and vomiting, and it might possibly have been thought that the dilatation was sequential to the cicatrization of an ulcer. It so happened that the day after admission the patient developed pneumonia, of which he died rapidly, and, although we found one of the largest stomachs I ever saw, there was no trace of ulcer or of cicatrix. So, even in such cases, I feel we should try by lavage, by careful dieting (such as is suitable for dilatation of the stomach), and by the antiseptic drugs which find their application in such cases, to avert the necessity of laparotomy. I somehow cannot regard the operation which establishes a communication between the stomach and the jejunum as likely in the long run to prove satisfactory. It permits the food to leave the stomach before the mechanical and chemical parts of gastric digestion have been completed; it deprives the duodenum of the physiological stimulus which the hydrochloric acid coming from the stomach affords in bringing on the emission of bile and pancreatic juice; and it abruptly introduces into the jejunum highly acid and imperfectly prepared food instead of the alkaline material for which it is fitted.

I may add that doubt as to the value of surgery in the treat-

ment of bad stomachs has been somewhat suggested by the fact that of late years a few people have consulted me for stomachs which still gave them great trouble, and when noting the principal signs I found myself obliged to mention that "there is a scar five inches long" in the linea alba.

ART. VI.—*The Treatment of Non-malignant Gastric Ulcer.**

By SIR CHARLES BALL, M.Ch., Univ. Dubl.; F.R.C.S.I.; Hon. F.R.C.S. Eng.; Hon. Surgeon to His Majesty the King; Regius Prof. of Surgery Univ. Dubl.; Surgeon to Sir Patrick Dun's Hospital.

A CONSIDERATION of the causes which produce gastric ulcer and the conditions which tend to interfere with its healing when once established is obviously of first importance in deciding upon the best form of treatment to effect its cure.

The more or less circular outline, flat base, and sharp-walled edges of ulcer of the stomach are very special characters which at once suggest the operation of some special cause, and the exposure of the stomach surface to a highly acid digestive fluid has been assumed to be the explanation. That the normal stomach is immune to autodigestion is, of course, obvious. Weinland (Halliburton's "Handbook of Physiology," 6th edition, page 489) considers that this immunity is due to the formation by the stomach epithelium of an antipepsin, and that in the same way the intestinal epithelium forms an antitrypsin. If, then, the mucous membrane is injured by direct traumatism from hard substances swallowed, by septic infection from the ingesta, or by necrosis following embolic infarction, this theory supposes that autodigestion occurs in the damaged area, and thus the ulcer is extended in dimensions, and its healing is interfered with. This theory has received very general acceptance; so we see, even in the most modern text-books, the disease spoken of as "peptic ulcer of the stomach." I am confident that this is one of the somewhat numerous fallacies which

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, January 18, 1907.

have been adopted from time to time in medicine without question, although opposed to directly ascertainable facts. The evidence obtainable by *post-mortem* examination, by clinical observation, and by surgical experience clearly demonstrates that peptic action has nothing whatever to say to the origin or maintenance of gastric ulcer.

It is common to find at *post-mortem* examinations cicatrices in the stomach showing that gastric ulcers have undergone spontaneous cure. If autodigestion had been the cause of these ulcers how is it possible that the delicate process of healing by granulation and epitheliasation could go on while exposed to the same influence? It is notorious that a large proportion of cases of gastric ulcer get well under treatment by rest in bed, rectal feeding, and little or no fluid nourishment by the mouth. Physiologists tell us that gastric juice is secreted independently of the ingestion of solid food, that the sight of meat to a hungry dog causes a free flow, and that fluid meat extracts stimulate secretion. It is a popular expression that at the sight of dainty food the "mouth waters"; it would alike be true to say that under similar circumstances the "stomach juices."

Let us take now the case of a chlorotic girl lying in bed in hospital undergoing the routine treatment for gastric ulcer; possibly in the next bed may be a case convalescent from some acute disease. When dinner hour arrives the convalescent is provided with a succulent mutton chop, the stomach case with a rectal injection and possibly a tablespoonful of chicken broth. Our knowledge of physiology tells us that the latter must have a free secretion of gastric juice, which, not getting the coveted mutton chop on which to expend its energies, might reasonably be expected to act more vigorously on the ulcer than if she had received a solid meal.

Surgical experience tells us that stomach wounds when closely sutured up heal with the utmost facility; it is usual in such wounds to bring the divided edges of mucous membrane together by a continuous silk suture, which must produce a certain amount of necrosis, and which eventually cuts its way out into the lumen of the stomach. Surely under these

circumstances if gastric digestion of living stomach tissue ever occurred these wounds would not heal, or at any rate leakage would be of frequent occurrence, but we know that with proper modern technique leakage seldom or never occurs. This satisfactory healing of stomach wounds appears to indicate that the immunity against autodigestion is not confined to the mucous membrane, but is present also in the deeper coats. The theory, therefore, of Weinland that the gastric epithelium forms an antipepsin appears to be scarcely a sufficient explanation.

A consideration of these facts renders the theory of peptic action as a cause of gastric ulcer quite untenable.

Septic infection, especially coming from suppuration in connection with bad teeth, has been suggested as a cause of gastric ulcer, and in all probability this may be frequently an initial element of the disease; but it is hard to imagine that it can be the cause of a chronic ulcer remaining open for months or years, especially when we see that gastro-enterostomy performed when there is an open ulcer in the stomach so rarely becomes infected.

The mechanical effect of solid food being churned about in the stomach is sometimes mentioned as the reason why gastric ulcers, which may have had their origin in traumatism, sepsis, or infarction necrosis, do not readily heal, and although hitherto it has usually been considered as of secondary importance to the peptic theory, I am convinced that it is the true explanation not only of the characteristic appearance of gastric ulcer, but also of the known facts relating to spontaneous cure and the results of medical and surgical treatment.

Many years ago, as a medical student, I saw an old surgeon make an issue in the back of a patient's neck for the treatment of severe facial neuralgia. A piece of adhesive plaster with a small circular hole in it was first applied, and caustic potash was rubbed in so as to produce a circular slough of skin where it was exposed in the hole in the plaster; when the slough separated an ulcer was left, and as the neuralgia had not been cured, the surgeon decided to "keep the issue open"; this was done by the simple process of keeping a pea in the ulcer by

means of a piece of adhesive plaster. By this method the issue could be kept from healing as long as was considered necessary, and the characters of the ulcer thus produced, with flat base and sharp cut edges, closely resembled the appearances we are familiar with in chronic gastric ulcer. As the pea kept the issue from healing, so the frequent passage of solid food over the surface of a gastric ulcer retards its cicatrisation.

We know that pain—sometimes very severe pain—follows the introduction of solid food into a stomach which is the site of ulcer. This may be so great that the patient instinctively avoids solids, and thus affords the stomach that rest which is necessary to permit of spontaneous cure.

Our modern treatment of gastric ulcer, which is quite unintelligible on the peptic theory, is readily explained if we believe that the continuance of ulcer is caused by the mechanical effect of solid food.

It is certain that a large proportion of cases of gastric ulcer will get quite well by rest in bed, rectal feeding, withholding solid food, and strict limitation of the amount of fluids taken by the mouth; but it is well to remember that there are limits to this plan of treatment, and that if carried too far it will defeat its object, as there can be no doubt that a condition of semi-starvation seriously interferes with the healing process, and that surgical operations undertaken under these conditions are not satisfactory. I would strongly urge that all cases of uncomplicated ulcer of the stomach should, in the first instance, be treated by a short but efficient course of rest and limited diet, and that those cases which do not show rapid and marked improvement should be dealt with by surgical operation, and that cases of recurrence of symptoms after apparent cure by rest and limited diet should at once be operated on.

The operation now recognised as best in these cases is posterior gastro-enterostomy. Excision of the ulcer can be practicable in only a small minority of cases, and although it may occasionally, in suitable cases, be considered as an addition to gastro-enterostomy, it should not be undertaken as a substitute, as the essential object of surgical operation

should be the provision of a free outlet from the lower portion of the stomach into the jejunum, the free exit thus provided for the contents of the stomach affording the ulcer the rest essential for its healing, and tending to prevent recurrence in the future.

My personal experience of gastro-enterostomy and pyloroplasty extends to forty cases, but in only four of these was uncomplicated gastric ulcer found present; all the four recovered well, and—so far as I know—remain quite free from recurrence. The results obtained by others who have had larger experience show that the dangers of the operation are comparatively trivial, and the proportion of cases in which complete cure follows is large—in many instances patients who for months or years have been in misery being made perfectly well.

The brilliant results of modern gastric surgery have tended sometimes to engender surgical recklessness. We occasionally hear of gastro-enterostomy being performed in purely neurotic cases, in the gastric crises of tabes, and even in dyspepsia due to chronic renal disease. Such proceedings do much to bring discredit upon this operation, which, in properly selected cases, is often such a conspicuous success.

The immediate risk of posterior gastro-enterostomy in ordinary cases is probably not more than two or three per cent. It is, however, necessary to consider certain results of the operation which occasionally give trouble, and which are directly consequent on making a free communication between the stomach and jejunum, and of these the most frequent is the regurgitation of duodenal contents into the stomach, producing vomiting. The occurrence of vomiting after gastro-enterostomy is an interesting physiological problem. We are accustomed to believe that the act of vomiting is caused by, first of all, a closure of the pylorus, followed by a reflex peristalsis forcing the stomach contents up the œsophagus. If now a gastro-enterostomy is present, and as it is unprovided with any sphincteric apparatus, it is reasonable to expect that an attempt to vomit would empty the stomach into the jejunum rather than up the œsophagus. It is obvious that

for vomiting to take place under these circumstances there must be an associated spasm in the intestine, and also, probably, in the voluntary muscles of the abdominal wall.

Regurgitation of duodenal contents into the stomach, followed by persistent vomiting, is, however, not so troublesome with modern surgical technique as it was formerly. Katzenstein (*Medical Press*, Dec. 6th, 1906) states as a result of his investigations, principally on experimental gastro-enterostomy in animals, that a flow of duodenal contents containing bile and pancreatic juice into the stomach is constant for a considerable period after gastro-enterostomy, and, adopting the peptic theory of gastric ulcer, he suggests that the neutralisation of the gastric juice by the alkaline duodenal contents is the explanation of the good results obtained by gastro-enterostomy. It must, however, be remembered, as pointed out by Ewald, that it is unsafe to draw conclusions from the results of gastro-enterostomy in animals, as the horizontal posture in them favours the flow of intestinal contents into the stomach more than in the case of man; moreover, it is common surgical experience that bilious vomiting following gastro-enterostomy can generally be stopped by putting the patient in the sitting posture, and so facilitating drainage. Should, however, regurgitant vomiting prove serious, lateral anastomosis between the two limbs of the loop of jejunum involved in the gastro-enterostomy will usually prove effectual. In two of my forty cases of gastro-enterostomy this was necessary.

Another after-complication of the operation is the occurrence of so called peptic ulcer, sometimes leading to perforation, in the jejunum. An interesting paper by Dr. Watts in the *Johns Hopkins Hospital Bulletin* for July, 1903, deals with this subject. The author performed gastro-enterostomy on a dog, and three months after, it died of perforating jejunal ulcer. A review of the literature of the subject shows that up to date on fourteen occasions similar ulcerations have been recorded in the human subject; it is remarkable that they all have been recorded in Germany. The question whether such ulcers are really peptic is an

interesting one. Although the jejunum is normally immune to alkaline trypsin digestion, it is quite possible that it may not be, like the stomach, immune to acid pepsin digestion; it is also unaccustomed to the presence of large quantities of undissolved food, such as it must receive after gastro-enterostomy. It appears at present impossible to say which of these factors is the most operative; at any rate its occurrence is so rare that it cannot be held to be a contraindication to operation in suitable cases.

A curious sequence to gastro-enterostomy, which I have not seen described elsewhere, occurred in one of my cases. The portion of jejunum corresponding to the stomach anastomosis became dilated to quite four times its normal size, forming a sort of secondary stomach, and produced obstruction by kinking of the distal portion of intestine, with continuous vomiting; a lateral anastomosis below the dilatation quite relieved the symptoms. This was done a year ago, and the patient at present remains in good health. I am quite at a loss to account for this condition.

In conclusion, I would urge, after the fullest consideration of the risks of operation, both immediate and remote, that all cases of uncomplicated gastric ulcer which have had a reasonable trial of treatment by rest and limited diet without very marked improvement, should be subjected to gastro-enterostomy. There are, however, many points both pathological and physiological in connection with this most interesting subject which still require further elucidation.

ART. VII.—*Gastric Ulcer: its Diagnosis and Treatment.*^{*}

By JAMES ALEXANDER LINDSAY, M.D., F.R.C.P. (Lond.),
M.A.; Professor of Medicine in Queen's College, Belfast.

GASTRIC ULCER must be decidedly common in the North of Ireland, as I find from the reports of the Royal Victoria Hospital that we had 110 cases in 1905, 70 in the previous year, and 69 in the year before that.

^{*} Contribution to a discussion in the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, January 18, 1907.

As regards the conditions that would warrant the diagnosis of ulcer, I am hardly prepared to admit that we must wait for hæmorrhage. I am inclined rather to say that in the case of any young woman, especially one who was debilitated or anæmic, if she had much pain after food, occasional vomiting, and a small area of tenderness in the epigastrium, the evidence for ulcer was fairly satisfactory. Most cases of this kind have ulcer as their basis ; there are, of course, differences of degree. Gastralgia should be diagnosticated with caution, and only when ulcer can fairly be excluded.

A period of complete rest is very important, with a restricted diet. We should also employ alkalis, and probably bismuth, as well as various remedies for the relief of pain, such as hot fomentations, poultices, flying blisters, opium and morphin. Such is a general idea of treatment, but there are differences of opinion and practice in regard to details. How long should strict rest be enforced ? For an ordinary case I suggest a period of three weeks as an average, but that period might often with advantage be extended. As regards diet, I agree with Dr. Little that we must not think only of the ulcer : we must bear in mind the constitutional condition of the patients, and the necessity for putting them in a favourable condition for promoting healing of the ulcer. In cases of recent hæmorrhage I put the patients for a short time on nutrient injections. This, however, I regard only as a temporary expedient. It is not usually well tolerated for a period of more than a week or ten days. In other cases I have been in the habit of keeping the patients for three weeks at least on milk and strained soups or beef juices. In recent times there has been a considerable revolt in Germany against too strict a dietary. Leube allows rice, sago, soft-boiled or raw eggs, calves' brains, and even boiled chicken and pigeon at the end of ten days, and scraped raw meat by the seventeenth day. Lenhartz allows raw eggs with a little wine, milk freely, and sugar even from the first day. Senator allows throughout gelatine, jelly, cream, almond solution, and iced butter. The general drift of such advice is to allow a considerable amount of liberty even from a very early stage, and even where hæmor-

rhage has been present. These recommendations have one point in common—the avoidance of the evils of under-nourishment. A diet rich in albumen has the further advantage that it tends to check hyperacidity. Probably in these islands we have gone to the other extreme and leaned rather to the advocacy of a dietary too exclusively designed for sparing the stomach. In view of German practice, I have lately given myself more liberty, though not to the extent of the quotations which I have made, and I have not yet seen a case where such liberty has led to mischief. I have allowed whipped egg, animal jellies, and butter and cream from an early stage of these cases. There is much room for discretion in such matters, and the amount of pain is an important guide.

I have already mentioned the use of alkalis and bismuth. I am not inclined to think very highly of nitrate of silver, nor am I disposed to favour the washing out of the stomach. I attach great weight to care during convalescence. Much physical rest and cautious return to a generous dietary are points of great importance. In the treatment of hæmorrhage I recommend absolute rest, an ice-bag to the epigastrium, nutrient enemata, but I feel doubtful as to the ordinary astringents. The symptoms of partial pyloric obstruction may be mitigated by a carefully regulated diet and occasional lavage.

In my experience recovery in a good many cases has not been complete, more or less pain and discomfort remaining after food. It is probable that in such cases we are dealing with a partially healed ulcer, or that adhesions have taken place. A second course of medical treatment might be undertaken, but I think the time has then arrived for invoking the aid of surgery.

In relapsing cases particularly I recommend the consideration whether operative measures should not be resorted to. We may be able in this discussion to draw the line more clearly between the place of the physician and the surgeon in such cases. Nothing is more desirable than complete harmony and co-operation between both sides of the profession. The physician should recognise that the intervention of surgery

in this field of practice has been a great boon to suffering humanity ; he should be careful not to postpone too long his appeal for assistance to a surgical colleague, and he should seek that assistance in most, if not all, relapsing and chronic cases. On the other hand, the surgeon should recognise that his assistance is required only in a minority of such cases ; that a full and even patient trial of medical measures is always the first duty ; he should be chary of mere exploratory operations which are likely to redound neither to the credit of surgery nor to the advantage of the patient, but in such cases as those described by Sir Charles Ball, where the indications are fairly clear, he should intervene with promptitude and operate with boldness. Such intervention would undoubtedly lead to the best results.

ART. VIII.—*Contribution to a discussion on the Treatment of Gastric Ulcer from a Surgical Standpoint.*^a By ARTHUR BROWNLOW MITCHELL, M.B., B.Ch., B.A.O., R.U.I., F.R.C.S.I. ; Surgeon to the Royal Victoria Hospital, Belfast, and to the Ulster Hospital for Children and Women.

GASTRIC ULCER is a much more serious disease than is generally recognised. The mortality is very difficult to estimate. Mikulicz^b puts it at twenty-five per cent., and states that at least twenty per cent. of chronic cases develop phthisis, while not less than five per cent. perforate. If these figures are even approximately correct, we are bound to consider much more frequently than we have yet done the question of operative treatment. Do not let us make any mistake ; an abdominal operation of this kind is a serious thing to propose, and serious to carry out ; but in competent hands the risk should not exceed five per cent.—in other words, it is no greater than the danger of perforation, in which the patient already stands.

“ Exploratory ” operation is, in my opinion, an unscientific

^a Read before the Section of Medicine in the Royal Academy of Medicine in Ireland on Friday, January 18, 1907.

^b Bergmann System of Surgery. Vol. IV., p. 306.

proceeding. There should always be some definite diagnosis, and operations should be undertaken with a deliberate object in view. In other words, we set out intending to perform posterior gastro-jejunostomy, but owing to various complications this procedure may require to be modified. This is very different, however, from *opening the abdomen to see whether it ought to have been opened*, for that is really what an exploratory operation generally means. Not at all infrequently there is little that is pathological to be seen in the stomach ; but a few silvery adhesions here or there, or some enlarged glands in the omentum, will be found on careful examination, indicating damage to the mucous membrane.

Tubercular disease of the stomach is, I think, commoner than is generally believed. I have had three undoubted cases in forty-eight consecutive operations. They all benefited decidedly, but progress is slower than in ordinary ulcer.

As to cure, my impression is that a properly performed gastro-jejunostomy may pretty confidently be relied upon to cure ninety per cent. of cases, and those in which failure occurs will be found to have some other ailment militating against success.

I have not yet had occasion to operate for the arrest of acute hæmorrhage, but do not feel inclined to do so. For recurrent hæmorrhage gastro-jejunostomy is the treatment.

Operation is not to be recommended for all cases of ulcer, but unquestionably it should be resorted to more frequently than it has been. After a fair trial of thorough medicinal and dietetic treatment without satisfactory results, operation should at least be considered before the health of the sufferer is undermined, and the stomach so deformed or adherent as to require some elaborate and dangerous surgical procedure. The duration of treatment is a point of some importance. One month may be regarded as the full time for complete cure by operation. Under medical treatment a patient is fortunate if at the end of a month she is timidly attempting an average diet.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Mercers' Company Lectures on Recent Advances in the Physiology of Digestion : Delivered in the Michaelmas Term, 1905, in the Physiological Department of University College, London. By ERNEST H. STARLING, M.D., F.R.S. London : Archibald Constable & Co. 1906. Pp. 156.

THE Mercers' Company having made a gift in aid of the work done in the Physiological Department of University College, the Council of the College have resolved that a course of lectures shall be given each year, to be called the "Mercers' Company Lectures," and to deal with original investigations made in the department. In the volume before us the first of these courses is published. The first lecture treats of the different food stuffs. Their energy value is shown to be the amount of heat which each will evolve when burned to CO_2 and H_2O . In this view of the matter the nitrogen of the proteid is valueless, and all the energy is derived from the carbon and hydrogen, but the nitrogen is essential for the utilisation of the energy furnished by the carbon and hydrogen. "Many facts show that the combustion and utilisation of the energy of the carbon and hydrogen of the food take place in the protoplasm itself, the oxidisable molecules being linked on to the central living nucleus ; and it seems that nitrogen plays an important part, both in this linkage and in bestowing on the complex thus produced the lability or instability which is a necessary condition of the vital processes themselves.' Nitrogen is also essential for the growth and repair of the living tissues. The processes of digestion are of use to render the food stuffs fit for absorption into the blood. These must be made soluble and diffusible, and reduced to such a condition that they can be directly assimilated by the cells of the body. Carbohydrates must be reduced to monosaccharides; fats must

be decomposed into glycerine and fatty acids, which latter are in part saponified; while the proteid molecule undergoes a decomposition and reconstruction to form a new molecule, the change being greater the more the proteid of the food differs from that of the tissue it is to nourish. These changes in the food stuffs are brought about by the action of ferments, and are all of a hydrolytic character. The ferment itself does not enter into the reaction, consequently a small quantity of ferment can bring about change in a very large quantity of the body on which it acts. The action is to quicken a process of hydrolysis which would require a much longer time to be accomplished if the ferment were not present, and in this it resembles the action of catalysts. It is shown by many examples that the apparent specificity of the different ferments and the apparently different effects of heat do not furnish absolute distinctions between the action of ferments and that of catalysts. In the action of these substances we have to take account (1) of the condensation of molecules on the surface of matter in a fine state of subdivision, or otherwise presenting a surface large in proportion to its mass; and (2) of the formation of intermediate compounds between the ferment and the substratum.

In the second lecture the action of ferments is discussed, and an attempt is made to discover how far it can be explained by either of the above considerations. Our space will not allow us to follow the author through this discussion, which will, however, well repay perusal as a fine example of the application of modern methods of physical chemistry to the solution of physiological problems.

The third lecture is on the secretion of saliva. After describing the composition and uses of this secretion, and the means by which its flow may be induced, the mechanism of the secretion is considered. The difference between the saliva got by stimulation of the chorda tympani nerve and that yielded on stimulation of the sympathetic, which was supposed by Heidenhain to be due to two different kinds of nerves, trophic and secretory, is now thought by Langley to be entirely due to the constricting influence of the sympathetic on the blood-vessels, and Starling believes that "for the

present we may regard the glands as supplied by one kind of fibre, namely, the secretory," in addition to the vaso-motor fibres. It is at once evident that the secretion is not a mere process of filtration through the walls of the blood-vessels, both from the specific composition of the saliva and from its molecular concentration, which is only about one-half that of the blood plasma, and would hence require a pressure of about two atmospheres to effect its separation. The living cells must hence take part and furnish energy for the secretion. These cells are those of the alveoli of the gland, not the vascular endothelium. The amount of water separated from the blood during the activity of the gland is greater than the volume of the saliva. The difference is accounted for by the increased lymph flow from the gland. Bunch has shown plethysmographically that the first effect of stimulation of the chorda is to cause a diminution in the volume of the gland, the swelling due to the vascular dilatation being more than balanced by the discharge of the contents of the gland cells. During activity the intake of oxygen is increased about three and a half times. Up to a certain point a conception can be formed of the total changes in the gland involved in the formation of the secretion, but when we attempt to understand the mechanism of the chemical machine in the living cell we meet with insuperable difficulties, and see "how far we are still from the actual comprehension of the events occurring in every living cell, and determining its conditions of rest and activity."

In the lecture on gastric digestion Pawlow's experiments, now well known, are described. That the chief agent in calling out the secretion is a reflex nervous mechanism, and that the efferent fibres run in the vagi is admitted, but the whole of the gastric juice obtained as the result of a meal cannot be thus accounted for. This second portion of the secretion, due to the presence of matters in the stomach, occurs after severance of the organ from the central nervous system. Popielski thought that it was due to a nervous mechanism existing in the walls of the stomach itself, but Starling points out that another explanation is possible—namely, that those substances which, when introduced into

the stomach, call out this secretion, do so by producing in the lining cells some substance (hormone) which, when absorbed into the blood, acts as a specific excitant to the gland cells—that, in fact, the excitation is chemical not nervous. This supposition has been examined by Edkins, whose experiments have demonstrated its truth. Starling is inclined to doubt the specific sensibility of the gastric mucous membrane found by Pawlow, and thinks that the differences in the composition of the gastric juice observed in feeding on different kinds of food may be accounted for by difference in the amount of hormone produced, and by difference in the saline constituents of the food.

Lectures V. to VII., on the pancreas, are of peculiar interest, for here we find an account of the discovery by the author and Bayliss of the true agent by which the secretion of this gland is called out, a discovery of fundamental importance, which throws light not only on pancreatic secretion, but on that of many other glands. This, now well-known, discovery is that the pancreas is made to secrete, by a chemical stimulus, secretin, formed in the mucous membrane of the small intestine, converted under the influence of acids into an active substance, absorbed into the blood and conveyed to the pancreas, which is thereby made to secrete.

As regards the islets of Langerhans, it has been shown by Dale, and his conclusions are accepted by Starling, that they do not differ fundamentally from the secreting alveoli, but are formed from them as a result of active secretion, so that the pancreas cannot be looked on as a mixed gland with two parts fulfilling different functions.

The existence of a ferment, enterokinase, in the succus entericus, whose function is to convert the inactive trypsinogen into active trypsin, was shown by Chepowalnikow. That this is really an example of ferment action, and that trypsin is not a compound body formed of trypsinogen and enterokinase, as supposed by Dastre and Stassano, is proved conclusively by Starling and Bayliss, who find that the smallest quantity of enterokinase can activate the largest amount of trypsinogen if sufficient time be given for its action. Plimmer has found that the variations in the composition of

the pancreatic juice, under different kinds of foods, as found by Pawlow, are not confirmed by further and more accurate experiment.

In Lecture VIII. it is shown that the secretion of bile runs parallel with that of pancreatic juice; that the introduction of acid or the entry of the acid chyme into the duodenum causes, not only a discharge of bile from the gall-bladder, but an increased secretion by the hepatic cells; and that this increased activity of the gland cells is due, not to nervous influence, but to a chemical stimulus—namely, secretin, formed by the intestine, activated by the acid, and conveyed through the blood to the liver. The digestive function of the bile is exerted chiefly on fats. It diminishes the surface tension between watery and oily fluids; it dissolves fatty acids and soaps, even those of calcium and magnesium; and it serves thus “as a vehicle for the suspension and solution of the interacting fats;” fatty acids and fat-splitting ferment.”

The intestinal juice is the subject of the ninth lecture. The upper part of the intestine is mainly concerned in secretion, the lower part in absorption. The flow of juice, like that of the pancreatic fluid, is increased after a meal, principally from the third hour. How far nervous influences affect the secretion is still undetermined, although there can be little doubt that the increased activity due to mechanical stimulation is brought about through the agency of Meissner's plexus. That, however, the main stimulus is chemical is certain. Secretin which calls out the activity of the pancreas and liver also increases the flow of succus entericus. It has been stated that there is another hormone contained in the secretion of the upper part of the intestine called out by the action of secretin. This second hormone, when absorbed and carried by the blood to other parts of the intestine, calls out its secretion, although it is without action on the pancreas. The succus entericus, besides enterokinase, contains erepsin, a ferment which, although it does not digest coagulated proteid or gelatin, and only slowly dissolves caseinogen and fibrin, has a rapid hydrolytic action on the first products of proteolysis, converting albumoses and peptones into amino- and diamino-acids. It also contains ferments which split

dissaccharides into hexoses, the form in which carbohydrates are assimilable, invertase acting on cane sugar, maltase on maltose, and lactase on sugar of milk.

The last lecture deals with the movements of the alimentary canal. Peristalsis, which plays such an important part in these movements, is a co-ordinated act in which both excitation and inhibition are involved, a process of contraction behind the object to be moved, with relaxation in front. This can be affected only by the agency of a co-ordinating centre. In the *oesophagus* this centre is situated in the *medulla oblongata*; in the intestine in the intrinsic nervous mechanism of the gut.

As regards its movements, the stomach consists of two parts. The fundus exerts a tonic pressure on the food and pushes it towards the pyloric portion, over which run waves of contraction, probably myogenic, by which the food is moved so as to bring every particle into contact with the mucous membrane. At intervals the pylorus opens and allows portions of the food to pass into the duodenum. This relaxation is brought about by a nervous mechanism, partly local, partly dependent on the connection with the central nervous system through the vagus. The opening of the pylorus depends not only on what takes place in the stomach, but also on the condition of the duodenum. Increased acidity on the stomach side causes relaxation, while an acid condition of the duodenal contents causes contraction, so that after each discharge of acid chyme into the duodenum the sphincter remains closed until the acid is neutralised by the bile and pancreatic fluid.

In the intestine two kinds of movements may be observed :— A swaying movement of the coils from side to side, and true peristaltic contractions. The former, so-called pendular, movements are attended by waves of contraction which pass rapidly over the surface, involving simultaneously the circular and longitudinal coats. They are probably myogenic in origin, as they are unaffected by painting the gut with cocaine or nicotine. They serve to mix up the contents of the gut with the digestive fluids, but have no translatory effect. The second, or true peristaltic contractions, cause the forward movement of the contents of the gut. They consist of con-

traction above and relaxation below the distended portion. They persist after complete severance of the intestine from the central nervous system, but are abolished by painting the surface of the gut with nicotine or cocaïn. They are, therefore, nervous in origin, and produced by the agency of Auerbach's plexus. The central nervous system, however, exerts an influence on the intestinal movements, stimulation of the *vagus* causing increased irritability and increased contractions, while stimulation of the splanchnic causes pronounced inhibition. Antiperistalsis never occurs. The ileo-cæcal valve relaxes in front of a peristaltic wave, but resists regurgitation. It is unaffected by stimulation of the *vagus*, but stimulation of the splanchnic, which causes relaxation of the rest of the intestine, produces a strong contraction of the muscle of the ileo-cæcal valve.

In the proximal portion of the large intestine a series of peristaltic and antiperistaltic waves occurs by which the contents are mixed and brought into contact with the coats of the intestine; water is absorbed, and the hard masses are then driven forward to the sigmoid flexure by true peristaltic contractions. The distal colon formed of the sigmoid flexure and rectum is completely under the control of the spinal centres, which are called into activity by increasing distension of the intestine.

In an Appendix is given a list of papers, bearing on the subjects treated of in the lectures, which have been published since 1899 by workers in the Physiological Department, University College. The list comprises thirty-four papers, many of which are of almost epoch-making importance. It is a noble record of work, and justifies the liberality of the Mercers' Company in contributing to the support of a department which can demonstrate so well its usefulness.

Polytechnic Cookery Book. By M. M. MITCHELL, M.C.A.
London: Longmans, Green & Co. 1907. Cr. 8vo. Pp.
xii + 242.

* THE authoress of this book, Miss M. M. Mitchell, has brought to bear upon its preparation a practical experience extending

over many years, and gained at the Polytechnic School of Cookery, in which she has taught large numbers of pupils during the last fifteen years. As Miss Mitchell well observes in her preface, "the art of cooking is to prepare the food so as to obtain the highest nutritive value, and to present it in the most attractive manner."

Reviewing the work from a medical standpoint, we are naturally most interested in the chapters on "Food" (Chapter I.) and on "Sick-room Cookery" (Chapter XIV.). To these we may add Chapter II., on "Marketing and Seasons for Foods." On this last point physicians and surgeons are often lamentably ill-informed, and this lack of knowledge may place a young practitioner in an awkward position in his relations with his clients.

So far as we can judge, the receipts which abound in the book are excellent. From the list of soups we miss one of the best, if one of the most expensive—oyster soup.

We quote, in conclusion, the following excellent advice in the chapter on "Sick-room Cookery":—"Everything connected with the food should be scrupulously clean, and served with the view of tempting the appetite, as well as being nourishing. If possible, the food should come as a surprise, the patient neither seeing nor smelling it while it is being prepared. The food left over must never remain in the sick-room" (page 207).

The Diseases of Women. A Handbook for Students and Practitioners. By J. BLAND-SUTTON, F.R.C.S., Surgeon to the Middlesex Hospital, and Senior Surgeon to the Chelsea Hospital for Women; and ARTHUR E. GILES, M.D., B.Sc. Lond., F.R.C.S., Surgeon to the Chelsea Hospital. Fifth Edition. With 129 Illustrations. London: Rebman, Ltd. 1906. Pp. viii + 536.

THE fifth edition of this well-known work does not present any very considerable change from former editions. The principal alterations are in relation to chorion-epithelioma, extra-uterine gestation, and tumours of the ovary. A short paragraph has also been added on the subject of metastatic

cancer of the ovary. The writers "still believe that when surgical authors are able to refrain from publishing notes of successful cases in text-books, the established facts of the art can be presented in a very convenient compass." We were not aware that the writers of any modern text-book adopted this practice, though in former days, when the practice of "the Art" was entirely empirical, such a course was common. We suggest to the author that the sentence is unnecessary and is therefore offensive.

The fact that this book has passed successfully through so many editions proves that it must be of considerable value, but we must personally confess to a feeling of disappointment regarding it. Good as it is, it might so very easily be a great deal better. We are confident, however, that the book will still pass through many editions.

Operative Gynecology. By HOWARD A. KELLY, M.D., LL.D., F.R.C.S.; Professor of Gynecological Surgery in the Johns Hopkins University, and Gynecologist to the Johns Hopkins Hospital, &c., &c. Vol. I. Pp. xviii + 680. Vol. II. Pp. xiii + 656. With 11 Plates and 703 Original Illustrations, for the most part by MAX BRODEL; Associate Professor of Art as applied to Medicine in the Johns Hopkins University. Second Edition. Revised and Enlarged. London: Sidney Appleton. 1906.

ALL English-speaking gynecologists will unite to welcome the appearance of the second edition of Dr. Howard Kelly's magnificent work on gynecology. As might have been expected, the new edition contains a large amount of fresh matter, and many additional illustrations. The principal changes are to be found in the chapters on topographical anatomy, in those on complete tear and relaxed vaginal outlet, and in those dealing with the urethra and bladder and the ureters and kidneys. For the benefit of the general practitioner a new chapter has been added on local and palliative treatments, on displacements and pessaries, and on menstruation and its anomalies. A new chapter on bacteriology has been written by Dr. W. W. Ford, one on the use of the

X-ray in diagnosis by Dr. F. H. Baetjer, on diseases of the hymen by Dr. George Gelhorn, and on inversion of the uterus by Dr. G. W. Dobbin. In the second volume, a new chapter on abdominal extirpation of the cancerous uterus, with fifty-six new illustrations, has been added by Dr. J. A. Sampson, as well as one on gynaecological diseases in children by Dr. Elizabeth Hurdon.

The text of the book in its enlarged form is even more useful and necessary to the gynaecologist than it was before, whilst the illustrations form a magnificent Atlas, unapproached in any other English work on the subject. We can congratulate Dr. Kelly and his assistants most heartily on the result of their strenuous labours.

The Essentials of Histology: Descriptive and Practical. For the Use of Students. By E. A. SCHÄFER, LL.D., ScD., F.R.S.; Professor of Physiology in the University of Edinburgh; formerly Jodrell Professor of Physiology in University College, London. Seventh Edition. London, New York, Bombay and Calcutta: Longmans, Green & Co. 1907. 8vo. Pp. xi + 507.

PROFESSOR SCHÄFER'S "Essentials of Histology" is a work of which little need be said by a reviewer—its reputation rests on too firm a foundation to suffer loss by any onslaught of hostile criticism, even were such possible. The present is the seventh edition, a fact which by itself disarms criticism.

The volume has been considerably enlarged in respect of matter, but not in bulk, owing to the fine paper on which it is printed. The most important addition to the text is the extended description of the structure of the central nervous system contained in Lessons XXXIX. to XLV., inclusive. Oposonins are mentioned at page 50 in connection with the amoeboid phenomena of the colourless blood corpuscles.

Another feature in this edition is the profuseness of the illustrations, which now number 553. In his preface the author expresses his recognition of the readiness with which other writers have placed illustrations at his disposal. He tells us that this recognition is especially due to Professor

Sobotta and to Professor Ramón Cajal, the latter of whom was good enough to lend many of his original drawings for reproduction in this work. The value to the medical student of the present edition has been enhanced by the printing of many of the illustrations in colour. In this way a better idea of the appearance of the stained preparations is secured.

We turned with interest to page 252 to find out what Professor Schäfer had to say about the much talked of "Bundle of His." He writes as follows—in small type, by-the-by:—"A muscular bundle which shows less differentiation than the rest of the cardiac muscle has been described by Stanley Kent, His and others, running in the septum and affording a bridging connection between the muscle of the auricles and that of the ventricles. This bundle is commonly believed to serve to propagate the contractions of the auricles to the ventricles and thus to maintain their regularity of rhythm; and it is stated that when the bundle in question is severed experimentally or by disease this propagation is no longer possible, and the ventricles in consequence beat with a much slower rhythm than the auricles. The accuracy of this statement is, however, denied by Kronecker, who regards the regularity of the cardiac contractions as a function, not of the muscular substance of the heart, but of the nerve-fibres, which are distributed to every part of the myocardium."

Schäfer's "Essentials of Histology" should be in the hands of every student of medicine.

The British Journal of Tuberculosis. Edited by T. N. KELYNACK, M.D., M.R.C.P. London: Baillière, Tindall & Cox. Vol. I. No. 1. January, 1907.

WE welcome with the advent of the New Year the first appearance of this new quarterly journal devoted to the study of tuberculosis from a medico-sociological point of view. Special articles by writers of eminence are a special feature of the review, and the first of such is appropriately contributed by Professor Clifford Allbutt, Regius Professor of Medicine in the University of Cambridge, whose long experience and

brilliant diction combine to make his "retrospect" a paper of charming and instructive reading.

Other articles are contributed by Dr. R. W. Philip, "An Anticipation"; Sir Lauder Brunton, "Tuberculosis and National Efficiency"; Sir Hermann Weber, "Climate as a Factor in the Treatment of Tuberculosis"; Sir Samuel Wilks, "The Combat with Consumption: A Contrast"; and Dr. Francis Hare, "Treatment of Hæmoptysis by Nitrite of Amyl." There is also a discussion on the care and control of the consumptive poor in England and Wales, in Scotland, and in Ireland, to which Sir Douglas Powell, Dr. Byrom Bramwell and Sir John W. Moore have contributed articles dealing with their respective countries.

The journal reflects credit on its publishers; the letterpress is clear, the paper is good, and the illustrations are excellent. As may be gathered from the names of the contributors to its first number, it has commenced admirably, and if the same high level of excellence can be maintained in future issues it will have at least deserved the success which we cordially wish for it.

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of GUSTAVUS P. HEAD, M.D.; Professor of Laryngology and Rhinology, Chicago Post-Graduate, Medical School. Volume VIII. *Materia Medica and Therapeutics, Preventive Medicine, Climatology, Forensic Medicine.* Edited by GEORGE F. BUTLER, Ph.G., M.D.; HENRY B. FAVILL, A.B., M.D.; NORMAN BRIDGE, A.M., M.D.; DANIEL R. BROWER, A.M., M.D., LL.D.; HAROLD N. MOYER, M.D. Series 1906. Chicago: The Year Book Publishers.

THIS excellent volume of condensed extracts is a model of what such a reference manual should be. The size is of the most convenient for manipulation and transference, the type and paper leave nothing whatever to be desired, the binding is neat and tasteful, and the style and diction of the contents of the text are truly admirable. Of course the

frequency of change of subject almost rivals that of the traditional lexicon. The number of headings is enormous; and the fact that we have not been able to discover any sin of omission represents the highest testimony which is in our power to offer on the subject of the intrinsic value of the contents. Among the many virtues displayed by our trans-Atlantic *confrères* in their culture of scientific literature and book-making, we should say that their almost inspired skill in the skimming off of the contemporary cream, and its tastefully convenient presentation to their immediate friends and patrons, is one of the most notifiably prominent. We have ascertained with genuine pleasure that—"Careful scrutiny of the periodicals of the year has not revealed sufficient literature of value on the subject of suggestive therapeutics to warrant the preparation of a section on the subject. Under the circumstances it was thought best by the editors of the department to allow it to remain unoccupied rather than to fill it with material which, in their judgment, was unworthy of presentation to the medical public." The little of value that has appeared on the subject has been accounted for in the section of general therapeutics. We will merely add, in conclusion, that it gives us the most genuine pleasure to recommend this ideal specimen of a professional Year-book to the attention of our readers.

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of GUSTAVUS P. HEAD, M.D.; Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume IX. Anatomy Physiology, Pathology, Dictionary. Edited by W. A. EVANS, M.S., M.D.; ADOLPH SCHERMANN, M.D.; WILLIAM HEALY, A.B., M.D. Series 1906. Chicago: The Year-Book Publishers.

THE publishers of this extremely neat and conveniently-sized manual ask the reader to "Please note that the present volume is one of a series of ten issued at about monthly intervals, and covering the entire field of medicine and surgery

each volume being complete for the year prior to its publication on the subject of which it treats." They also add that "this series is published primarily for the general practitioner." We cordially congratulate them on the result of their well-meant labours; and we also offer our special thanks to the printer and binder, as well as editors and redactors, for the genuine intellectual and sensuous enjoyment which they have provided for us, and which we gratefully acknowledge to have received during the perusal of the pages of this manual. It is a truly ideal work of reference, and one which should be on the desk of every English-speaking practitioner.

Syphilology and Venereal Disease. By C. F. MARSHALL, M.D., M.Sc., F.R.C.S.; late Assistant-Surgeon to the Hospital for Diseases of the Skin, Blackfriars; formerly House-Surgeon to the London Lock Hospital; Surgical Registrar to the Hospital for Sick Children, Great Ormond Street, &c. London: Baillière, Tindall & Cox. 1906. Demy 8vo. Pp. x + 509.

SYPHILIS, like poverty, is always with us; and, like the latter, presents a basis of interest of truly cosmopolitan diffusion. Old and familiar as is this protean plague in its interminable ramifications and its labyrinthine complications, its living interest must remain always new. And the present volume arrives at a peculiarly opportune season. Since the excellent work on this subject brought out by Berkeley Hill and Arthur Cooper a quarter of a century ago there has been no systematic treatise published in England. And now that we are in another generation, and that the common stock of knowledge regarding matters venereal has been widely extended and brilliantly illuminated of recent years by such methods and discoveries as the experimental inoculation of monkeys by Metchnikoff and Roux, Neisser, Finger, and others; and the discovery of the *Spirochæta pallida* by Schaudinn and Hoffmann; the conception of the important subject of parasymphylis, which originated with Fournier; and the broadly philosophic teachings of Finger, Neisser, Jadassohn,

and Balzer, on the subject of gonorrhœa and its complications, it must be admitted that a vacant space for the appearance of a new and up-to-date text-book had spontaneously grown up in the department of our venereal literature.

Dr. Marshall gracefully acknowledges his indebtedness to Professor Finger, the late Dr. Bartholemy and the late Dr. Schaudinn for useful information, and to Professor Fournier for permission to quote extensively from his works. We are very pleased, indeed, to find that he gives his own opinions "on controverted points"; and we are so far in complete accord with him in his endeavour to emphasise the importance of venereal diseases as ætiological factors that we recommend the following sentences to the best attention of every reader:— "When we consider that they are probably the oldest diseases which afflicted mankind; that they are both extremely contagious; that syphilis is *par excellence* the hereditary disease, and may be transmitted to the third generation; that gonorrhœa is the cause of a large proportion of the diseases of women, it appears difficult to over estimate their importance. If I seem to have exaggerated their influence, I can only repeat the words of Ricord—'On m'a fait le reproche d'avoir vu partout la vérole; moi, je repens au contraire de ne pas l'avoir assez souvent reconnue.'"

The author gives the most recent information regarding the accepted micro-organism of syphilitic infection—the *Spirochæta pallida*, or *Treponema pallidum*. He also places his readers in possession of the most up-to-date information derived from the methods and results of the experimental inoculation which has recently been practised on members of the anthropoid group—the remote relations of *Homo sapiens*. He places us in possession of full information regarding the disappointing results which have hitherto been obtained in this connection in the department of serotherapy, and the hoped-for immunity which many sanguine scientists have been anticipating with so much confidence. But it is idle to pretend to be able to discuss within the limits of a review even a representative percentage of the multitudinous items of scientific and clinical interest contained in the pages of this volume, so that we will merely add

that it has been produced in the best style of the eminent publishing firm of Messrs. Baillière, Tindall & Cox ; that the paper, type, and binding leave nothing to be desired ; and that the text should be carefully perused—as a matter of professional duty—by every English-speaking practitioner.

Tuberculosis : Its Origin and Extinction. By W. PICKETT TURNER, M.D. London : Adam and Charles Black. 1906. Pp. 96.

IN the book before us Dr. Pickett Turner proclaims his views regarding tuberculosis. These, he states, "are completely novel, purely original and utterly unorthodox." He is "upon a platform apart, not only from the members of his own profession, but also from the world at large."

The nature of the opinions which have placed the author in this position of splendid isolation may be gathered from the recapitulation which appears at the end of the book :—"Tuberculosis is an animal disease, and is primarily in all cases derived from cattle. It belongs to the mycotic group of diseases, bovines obtaining it from Timothy and other allied grasses by natural affinity. Man acquires the disease by ingestion or inoculation, never by inhalation. It is not hereditary, neither is there any predisposition to it in the individual. The bacillus in a state of nature is a saprophyte, but becomes pathogenic in cattle when they are deprived of actinism. It is reasonable to assume that by restoring actinism to them the bacillus will again become a saprophyte, in which case we shall have completely extirpated the disease."

To obtain suitable conditions in regard to actinism, domestic cattle should, in the opinion of the author, be placed in buildings with glass roofs, and for this purpose the ordinary glass of commerce should be discarded and material used which has been found by testing with the actinometer to cut off the least possible amount of the rays at the violet end of the spectrum.

These views are expressed with a deal of dogmatic assertion and a complete absence of experimental proof. The recklessness with which Dr. Turner propounds his theories is,

we think, much to be deplored. In the publisher's note of the volume we read that "in this work we find advocated probably the most gigantic advance that has ever been attempted in the annals of medicine," and, doubtless, "the stamping out of tuberculosis in man and animals by simple and natural means" would be such consummation, but the profession and the public rightly demand proof from the theorist who proclaims his ideas, and such is absent from the work before us.

One example of the author's recklessness may be quoted. In the passage in which he attributes the success, so far as it has gone, of the so-called open-air treatment to the action of light, he states that "it is singular, seeing that the action of light upon living bacteria is so well known, that the idea has never before struck anyone that it was actinism played this part." Dr. Malgat, of Nice, published in 1903 a volume entitled *La cure solaire de la tuberculose pulmonaire*, in which he advocated the use of light of measured intensity directly in the treatment of pulmonary consumption, and recorded eight cases in which his treatment had been adopted. His work was reviewed in this Journal in the May number of 1904.

The Journal of Balneology and Climatology. London: John Bale, Sons & Danielsson, Ltd.

In the October number of this Journal, 1906, there is an interesting article by Dr. Charles E. Nammack, of New York City, on "The Irish Riviera," which deals with the climatology and therapeutical possibilities of the coast of Cork and Kerry, from Bantry to Cahirciveen.

Glengarriff, Kenmare, Parknasilla, Waterville, Valentia, and Killarney are discussed in terms of appreciation as scenes of charm and rest, while Glengarriff and Parknasilla are specially mentioned as suitable resorts for patients suffering from consumption, in view of their sheltered positions, equable temperature, amount of sunshine, and the rapidity with which the superabundant rainfall drains through the porous soil. The Dingle Peninsula, that district of un-

developed possibilities so dear to the antiquarian, was apparently unvisited by the writer of the paper, and, indeed, the lack of suitable hotel accommodation at present existing in the region could hardly justify its being regarded as a place to which invalids should be sent.

While the County Wicklow and Bray are mentioned, we find no reference to Kingstown and the work done by Dr. J. Byrne Power in establishing its claim to be a true health resort.

We are pleased to observe that Dr. Nammack notes the improvement which has taken place in recent years in the facilities for transit and in the hotels of the south-west, and that he refers to the works on Irish hygiene and climatology of Dr. Edgar Flinn, Sir J. W. Moore, and Dr. Patrick Letters.

Circulation and Respiration. By SIR LAUDER BRUNTON, M.D., F.R.S.; Consulting Physician to St. Bartholomew's Hospital. London: Macmillan & Co. 1906.

THIS volume is the first of two which are intended to bring together in book form the very numerous scientific papers which the author has contributed to the current medical literature of the last forty years. The present collection is made up of thirty-eight papers in all, each of them dealing with the result of some experimental investigation, while the second volume is to be entirely occupied with the more purely clinical writings of the author. This is neither the time nor the place to offer any criticism on the material contained within the individual contributions, as each must have been subjected to due discussion and examination at the time of its original appearance, but we may unhesitatingly say that there is scarcely one of them that does not repay careful perusal at the present day, and that many of them may now be regarded as classics. Looking even over the titles of the various papers one must be at once struck with the large part that the writer has taken in the formation of modern ideas concerning pharmacology, and more especially with what is known concerning the action of drugs on the thoracic organs. His methods of work, and the difficulties that had to be encountered in earlier years, are briefly referred to in

the introduction, and that these were not to be despised can be well understood, when we learn that "when I began my experiments on digitalis there was no recording physiological instrument in use in this country, with the exception of one or two of Marey's sphygmographs."

Without saying more we recommend the work to our readers both for its historical interest and for its scientific value.

The Prophylaxis and Treatment of Internal Disease. By F. FORCHHEIMER, M.D. ; Professor of the Theory and Practice of Medicine, Medical College of Ohio, &c. London : Sydney Appleton. 1906.

THIS is a useful book, occupying as it does an intermediate position amongst manuals of its kind—that is, it is not a mere collection of all the different kinds of treatment that have been advocated from time to time for different diseases, nor is it a combination of symptomatology, pathology and treatment, but rather the expression of the matured experience concerning therapeutic measures of a physician who has practised and taught medicine, as distinct from the other branches of medical science, for thirty years. The only part which is not original is that which deals with tropical diseases, as in this field the writer has had no practical experience ; but the compilation that he has made is for the most part from the writings and teaching of those who have special knowledge of this subject, and the section therefore forms an integral part of the whole. Treatment, as the author understands it, is not limited to mere medication, and due prominence is given to general management and physical therapy, while a good acquaintance with the methods of other physicians and other countries is shown throughout. Special attention is given to diet, and a useful appendix on the composition of the more commonly used food-stuffs is included. Here and there a disposition is shown, however, to regard feeding in too chemical a manner. This, we think, is a mistake in principle, but even regarded as such it may be of value in drawing attention more forcibly to the caloric needs of the body and in ensuring the provision of an adequate amount of nourish-

ment in the true sense of the term. Operative measures are not discussed, but some pains are bestowed in trying to show when an operation is needful, and what objects should be sought in operation. This is an important part of the physician's duty, and what he finds in this book may aid him in giving a rational opinion in such cases instead of, as is sometimes done, relying entirely on the surgeon's dictum. No mention is made, as far as we can see, of Wright's vaccine treatment, but possibly the work was in the press before this method had assumed the importance that it now possesses. Still we think that in dealing with tuberculosis some mention should be made of the originator of the use of tuberculin in minute doses.

In discussing this book we have not attempted to deal at all with the facts that it contains, because they are so diverse and numerous that it would be impossible to do so; and, moreover, while not agreeing with all that is said, we consider the teaching to be in the main sound and well judged. We strongly recommend the book to all medical men, not as a text-book to be read, but as a volume to which they can refer, and thereby reconsider their own methods in the light of a prolonged and revised experience.

A Handbook of the Diseases of the Eye and their Treatment.

By HENRY R. SWANZY, M.D., Pres. R.C.S.I.; and LOUIS WERNER, M.B., F.R.C.S.I. Ninth Edition, thoroughly revised and enlarged. With 227 Illustrations. London: H. K. Lewis. 1907. Post 8vo. Pp. 744.

WITH the New Year we greet the new edition of this most deservedly popular handbook, the best we know of its kind.

It now, for the first time, appears under joint authorship. It contains 60 more illustrations than the previous edition, and we are glad to note that a chapter on elementary optics has been re-introduced. This we regard as a distinct addition to the general usefulness of the book. The bacteriology of conjunctivitis has been treated of in Chapter V., and the refraction and accommodation of the eye and the theory of the ophthalmoscope as well as the account of the

optical structure of the eye have been expanded, and the whole book in every detail has been brought up to date.

Another great improvement has been made which should assist students particularly. An asterisk has been affixed to those paragraphs which are not of primary importance to the junior student of the subject. These starred paragraphs, he can omit in his first reading of the book without in any way interfering with his comprehension of the succeeding portions. He is thus saved from much that, though useful, is not of prime importance to the beginner, and the subject is more easily assimilated, and he is therefore less likely to suffer from intellectual indigestion.

As we have already so often most favourably reviewed this handbook in its former editions, we need only say that the present edition justifies even higher praise than that which we bestowed on its predecessors.

The Uses of X-rays in General Practice. By R. HIGHAM COOPER, L.S.A.; Medical Officer in Charge of the Radiographic Department at University College Hospital; Physician to the Electrical Department, Tottenham Hospital; Radiographer to the Evelina Hospital for Sick Children. London: Baillière, Tindall & Cox. Pp. x + 89.

THE object of this little book is to give the general practitioner an idea of the help in diagnosis and treatment that can be obtained by the use of X-rays, and to point out suitable cases for its employment.

The work is divided into two parts. Part I., "X-rays in Diagnosis," deals with X-ray apparatus generally; the localisation of foreign bodies and the examination of diseases of the bones and joints are touched on. Part II., "X-rays in Treatment," describes briefly the action of X-rays on healthy and diseased tissues; its uses in affections of the skin, tuberculosis, malignant disease, leukæmia, &c., are discussed.

This treatise on the uses of X-rays contains a great deal of general information, clearly expressed, but it is given in such a condensed form that detailed description of the subject cannot be entered into. The book is well got up

and contains fifteen illustrations, about half of which are skiagrams.

The Röntgen Rays in the Diagnosis of Diseases of the Chest. By HUGH WALSHAM, M.A., M.D. Cantab., F.R.C.P., Chief Assistant in the Electrical Department of St. Bartholomew's Hospital, Senior Assistant Physician to the City of London Hospital for Diseases of the Chest; and G. HARRISON ORTON, M.A., M.D. Cantab., Assistant in the Electrical Department of St. Bartholomew's Hospital, Medical Officer in Charge of the X-ray Department of the National Hospital for Diseases of the Heart, and of the Cheyne Hospital for Sick Children. Pp. 88+viii. London: H. K. Lewis. 1906.

THE increasing number of cases sent to their X-ray department for examination of the chest, and the numerous inquiries from practitioners for information on this subject, led the authors, Drs. Walsham and Orton, to undertake the above work. Their comprehensive and lucid treatment of the subject, though contained in a short treatise, leaves little to be desired.

Chapter I. deals briefly with apparatus. Orthodiascopy and the principles that underlie correct X-ray interpretation are fully explained. Chapter II., describing radioscopy of the normal chest, is a most important one. The appearances seen in the five chief positions which are employed when making a complete exploration of the thorax with Röntgen rays are described, and the special reasons for the adoption of each position are discussed. In Chapters III. to VII. are contrasted with the normal the appearances found in pulmonary tuberculosis; pleurisy with effusion, pneumonia, empyema, abscess of the lung, &c.; the heart, pericardial effusion, thoracic aneurysm.

An important part of the work are the eighteen beautifully reproduced skiagrams. The fact that these have been in no way retouched renders them more valuable and instructive. There are also several figures, consisting of tracings of skiagrams of cases whose clinical histories are given.

There is an extensive bibliography in conjunction with

the text, which relates to the experience of other writers in this special branch of investigation.

In conclusion, we cannot speak too highly of the usefulness of "The Röntgen Rays in the Diagnosis of Diseases of the Chest" as a guide and book of reference on the subject with which it deals.

Enteric Fever in India and in other Tropical and Sub-tropical Regions. A Study in Epidemiology and Military Hygiene. By ERNEST ROBERTS, M.B., D.P.H., Major, I. M. S.; late Statistical Officer to the Government of India. London: Baillière, Tindall & Cox. Calcutta: Thacker, Spink & Co. 1906.

THE present volume of about 560 crown quarto pages of fairly closely-written print will, we are afraid, not appeal much to the profession at large, whose duty is more confined to considering disease in the individual, and as it affects small communities, than to its study as affecting large bodies of men. To the Army Medical Officer, however, including under that term members both of the Home Army and of the Indian Army Medical Services, it will, no doubt, prove useful, though we may say at once that it would probably have had a greater value even to them if it had been written in a less wordy and more concise manner. The avowed object of the book is to study the conditions which prevail amongst our troops in tropical climates, and which render them so susceptible to enteric fever, and, further, to discuss what changes in those conditions are desirable and at the same time practicable. The author takes up an indisputable position in maintaining that the public services have hitherto been run too much on the plan of allowing individuals to get sick and providing for their treatment, instead of taking precautions beforehand against sickness.

In pursuance of his theme the writer surveys first, historically, the influences which have affected the character of the *personnel* of the English troops in India and of the diseases to which they have been subject, showing, as he does so, that there has been latterly not only a general increase in

the prevalence of the disease but also a greater incidence in the higher age and longer service periods of the force exposed. This and other parts of the book are illustrated with maps and tables which form the basis of the argument and also facilitate the understanding of it. A discussion on ætiology follows, in which the present latrine system is graphically described and forcibly condemned, and then the author proceeds to examine and deny the statement that "if men were not sent to India until they had reached the age of twenty-five, we should practically abolish enteric fever from the army." Local and seasonal incidence is also discussed, and the important conclusion, well warranted by the facts, is drawn that the disease is endemic in certain well-defined geographical areas. The relative greater liability of officers to the disease is attributed to a lessened personal immunity. It is supposed that, under the present system of domestic hygiene at home, the poorer classes must be more exposed to infection, and must, therefore, gain a greater resisting power than the upper classes, and, in consequence, the latter will more easily fall victims when suddenly exposed to infection under altered circumstances. Many other points are also referred to, such as the methods of transmission, the incidence in different branches of the services, and the incidence in the civil population and native troops, but we have already said enough to indicate the general character of the work. Chapter X., the most important in the book, deals in detail with the methods which the writer recommends to ensure proper treatment, proper suppression and due prevention.

We recommend the work to the attention of those who are interested in this very special subject.

Portfolio of Dermochromes. By PROFESSOR JACOBI. Edited by J. J. PRINGLE, M.B., F.R.C.P. Supplement, containing Seventy-six Illustrations. London: Rebman. 1906.

ON two previous occasions we have expressed our admiration for this excellent atlas, which is the most instructive and, withal, the cheapest collection of dermatological plates in existence.

Dr. Pringle has placed the profession under a further debt of gratitude by translating and editing this beautiful supplement to Professor Jacobi's Atlas.

The supplement contains seventy-six new dermochromes, many of which depict syphilitic lesions, the importance of which is universally admitted. In addition to these, certain curious affections are portrayed—*e.g.*, Darier's disease, and Myiasis linearis (*Larva migrans*), which conditions Drs. Jacobi and Pringle believe are not so extremely rare as is commonly supposed. Many of Jacobi's colleagues have heartily co-operated with him, and the result is a practically complete pictorial atlas of diseases of the skin.

We again urge as many of our readers as possible to purchase this splendid and useful work of art.

High Frequency Currents. By H. EVELYN CROOK, M.D., B.S. Lond., F.R.C.S. Eng.; of the Middle Temple, Barrister-at-Law; Assistant in the Ophthalmic Department, West London Hospital; Member of the Röntgen Society, &c.; formerly Assistant in the West London Hospital, &c. London: Baillière, Tindall & Cox. 1906. Pp. x+206.

"HIGH FREQUENCY CURRENTS" is written with the intention of bringing more prominently to the notice of the medical profession the undoubted therapeutic value of this form of electrical treatment in certain pathological conditions.

The work is divided into three distinct parts. Part I. is concerned with "The Production and Physical Properties of High Frequency Currents." Various electrical phenomena are discussed, and the methods of employing them in treatment are clearly explained. The instruments are illustrated and are carefully described. Part II. contains an account of "The Physiological Effects of High Frequency Currents." Their action on the several systems of the body, and on micro-organisms is dealt with in separate chapters. Part III., on "The Therapeutic Uses of High Frequency Currents," discusses the conditions in which this form of treatment has been found of use. This portion of the work consists for the most part of a judiciously assorted collection of notes on patients,

giving their clinical history, the particulars of treatment, and the results obtained in each case. The quotations deal principally with the experiences of other workers.

Taken as a whole, this work is nicely got up, and the subject-matter is very well arranged. The author, Mr. Crook, has evidently taken pains to make the work as interesting and instructive as possible.

Atlas of Applied (Topographical) Human Anatomy for Students and Practitioners. By DR. KARL VON BARDELEBEN and PROF. DR. HEINRICH HAECKEL. Only Authorised English Adaptation from the Third German Edition. By J. HOWELL EVANS, M.A., M.B., M.Ch. Oxon., F.R.C.S. England. London and New York: Rebman. 1906.

THE famous names of von Bardeleben and Haeckel are a sufficient guarantee of the excellence of this *Atlas of Applied Human Anatomy*. As collaborators, these great anatomists had Dr. Fritz Frohse and Professor Theodore Ziehen, to whose artistic skill we owe many of the two hundred and five plates which constitute the "*Atlas*." The illustrations are told off as follows:—Fifty-three to the head, three only to the spinal cord, fifteen to the neck, thirty-nine to the arm, thirteen to the thorax, twenty-two to the abdomen, twenty-seven to the pelvis, and thirty-three to the leg.

The lithographic plates and woodcuts are in most instances coloured, so as to bring into clear relief the exact relations of different structures. For example, in Fig. 7, showing the direction of the fibres in the internal capsule, as seen from above, and drawn by Professor Ziehen of the natural size, the motor bundles for the face, tongue, arm, and leg are indicated by varying shades of red; the common sensibility and motor-sense bundle by shades of blue.

The descriptive letterpress is full and, as far as we can judge, accurate. The translator and editor, Mr. Howell Evans, brought to his task a ripe experience

gained in his former appointment as Senior Demonstrator of Human Anatomy at St. George's Hospital, London, and in his present appointment of Demonstrator of Operative Surgery in the same hospital. He had some difficulty with the German anatomical nomenclature, but he has overcome it, on the whole, in a satisfactory manner.

The Surgical Treatment of Chronic Suppuration of the Middle Ear and Mastoid. By SEYMOUR OPPENHEIMER, M.D. Illustrated by forty-six half-tone plates, containing sixty-four figures and twenty-seven key plates, all engraved from original drawings prepared from special dissections under the supervision of the Author. London: Rebman, Ltd. 1906. Pp. 425.

THE beautifully got up volume before us is a very complete account of the surgery of chronic suppurative otitis media. The Author states in his preface that it has been desired to "carry out the plan of taking the lesser conditions found in the usual case of chronic aural suppuration, and from this as a basis, gradually increasing the scope of the pathological alterations found present and the more extensive surgical treatment, until one reaches the complete mastoid operation with its various modifications, and then following this by a description of the plastic operations used to aid in healing the cavity made in the temporal bone, and also those suggested for more or less cosmetic reasons."

The work has been most conscientiously carried out, and the volume contains an exhaustive account of almost all that is known on the subject, and it is beautifully printed and illustrated; but its value to many readers is marred by its very poor literary style. The sentences are long and involved, and lamentably defective in grammar. The meaning is often obscure, and the reader has his attention perpetually called away from the point under discussion by some tangled sentence or some obvious illiteracy.

The passage from the preface quoted above gives some idea of the style of the book; or take the passage on p. 87:—

"Should the morbid changes be more extensive, one can only hope to obtain a permanent cure by a more radical operation, but in a small proportion of cases, even in the presence of extensive tissue changes, ossiculectomy is justifiable should for various reasons a more serious operation wish to be avoided."

The matter of the book is, however, so good that those who seek for information on the subjects it deals with may well endure some harrowing of their literary nerves in the process of drinking at the fountain of information.

The Dublin University Calendar. Vol. III. Being a Special Supplemental Volume for the Year 1906-7. Dublin: Printed at the University Press. Hodges, Figgis & Co. 1907. 8vo. Pp. viii + 568.

For the second time a special volume has been published under the familiar title of "The Dublin University Calendar." The first occasion was July, 1901.

This special volume, which forms Part III. of the Calendar for 1906-1907, contains the lists of Past Prizemen and Exhibitioners in Arts, and in the Professional Schools; of Graduates in Honours, of Honorary Degrees, of Degrees in the Professional Schools; of Provosts, Fellows, Scholars, Professors, Chancellors, Vice-Chancellors, and Representatives in Parliament; and of the Benefactors of Trinity College.

The volume is, accordingly, of very great academic interest, particularly at the present time when public attention is likely to become so riveted on the University of Dublin and Trinity College and their glorious history of more than three centuries. Certainly the University and College will be found to have left their name writ large in the annals of the British Empire and in the chronicles of Ireland.

PART III.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. MAGEE FINNY, M.D., F.R.C.P.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF OBSTETRICS.

President—R. D. PUREFOY, M.D., F.R.C.S.I.
Sectional Secretary—H. JELLETT, M.D., F.R.C.P.I.

Friday, December 14, 1906.

The PRESIDENT in the Chair.

New Form of Pessary for Use in Uterine Prolapse.

DR. SEYMOUR STRITCH said he had been obliged to devise a pessary which would support the uterus, in a patient aged eighty, without pressing on an ulcerated cervix. He accordingly had a pessary made in the form of a ring, supported by a vaginal stem, from the vulvar ends of which tapes are attached, for fixation, to a waist band. The ring can be hinged against its stem to facilitate its insertion, and when in position can be locked at the required angle to the stem. The uterus hangs within the ring free of pressure irritation. (Manufacturers—Down Bros., London.)

DR. HASTINGS TWEEDY said they should be grateful for any device which would ameliorate the suffering in prolapse of the uterus in the aged when operation was impossible. He thought the pessary should get a fair trial.

SIR W. SMYLY agreed with Dr. Tweedy. In two very important points—the joint and the waist attachments—Dr. Stritch's pessary was a distinct improvement on former ones.

DR. ALFRED SMITH expressed his intention of trying the pessary in his own practice.

THE CHAIRMAN also commended the pessary.

Uterus with Cancer of Cervix and Fundus.

DR. HENRY JELLETT showed a uterus with cancer of both cervix and fundus. He said that he showed the specimens rather from their pathological interest than as an operation specimen. One of the indications in the past for supra-vaginal amputation of the cervix was said to be cancer of the cervix, and he thought this specimen showed the untenable nature of such a position. The specimen was also a rare one, and Cullen in his work on cancer of the cervix recorded only half a dozen cases. Cases of cancer occurring at both the fundus and the cervix might be divided into two classes:—First, those in which the two cancers were independent of one another. Such cases were difficult to allocate with certainty, since, unless the two cancers were of a different nature, it was difficult to say that they did arise independently of one another. The mere fact of a cervical and fundal cancer co-existing without macroscopic connection did not afford evidence that the two were dissociated. The second class of case was that before them, in which it was possible to trace definite connection. In the present case, of a patient about fifty-four years of age, he had operated for cervical cancer, and had no reason to suspect fundal cancer. The first thing he saw on opening the abdomen was a slight adhesion of the intestines to the fundus. The operation was a fairly radical one, and he regretted to say the patient was unable to stand it, and died from the shock fourteen hours after. The operation had to be very extensive, on account of the necessity of taking away almost the entire upper third of the vagina. In the specimen before the meeting a fine line of connection could be seen between the two growths, and this presumably followed the lymphatics, traversing the muscular wall from one growth to the other.

DR. ALFRED SMITH said the case reminded him of a recent article on how cancer spread. Cases had been found in which the cancer extended not only through the lymphatics, but also by tiny branching tendrils that seemed to grow out from the primary cancer.

DR. HASTINGS TWEEDY thought it was a great triumph that so much of the vagina had been removed without rupture.

SIR W. SMYLY said he had seen the operation performed. It was a very radical one, and it was a great pity the patient had not the strength to stand it.

THE CHAIRMAN said the case reminded him of one of his own in which the uterus contained two varieties of cancer—one in the cervix and one deep in the tissue of the fundus, no microscopic or macroscopic connection being between them. The disease in both localities was not very far advanced, and the patient made a good recovery.

DR. JELLETT, in reply, said the operation was performed by Werder's method, as described in Cullen's "Cancer of the Uterus." In spite of the fact that it had been abandoned by its originator, it was an excellent operation for the removal of extensive vaginal infiltration. In the case before them the rectum was free, but the bladder was commencing to be involved, and there was considerable difficulty in separating the vaginal wall from the bladder.

Ovarian Cyst.

SIR W. SMYLY presented a specimen of ovarian cyst. He said the case showed all the characteristics of an ovarian tumour, except that he could not isolate the uterus from the tumour. The uterus moved with the tumour and, though he thought it was ovarian in origin he could not make a positive diagnosis. When he opened the abdomen he saw what appeared to be an ordinary ovarian cyst. He incised it, and let out a quantity of pseudo-mucinous fluid. When he had dealt thus with half a dozen cysts, he enlarged the incision, and found the uterus spread out over the front of the tumour, and the round ligament running over the top of it. The pelvic cavity was almost entirely de-peritonealised. When he had almost completely shelled out the tumour he found it impossible to separate it from the uterus, and, even as it was shown, it was impossible to see any line of separation between the tumour and the uterus, so that one would be almost inclined to think—were it not for the characteristics it presented—that it was a fibro-cystic tumour.

On the motion of DR. ALFRED SMITH, seconded by DR. HASTINGS TWEEDY, the specimen was referred to the Reference Committee for a special report.

Vesical Calculus with Nucleus of Pedicle Silk.

DR. ALFRED SMITH said that about three months after the

removal of a large ovarian cyst the patient began to suffer increasing pain during micturition, and her medical adviser was satisfied that she had stone in the bladder. Eventually she came to him. She was so tender that he could not palpate her without an anæsthetic, but when the anæsthetic was administered he found the bladder filled with stone. Having smashed the stone and washed out the fragments he drew out, by the urethra, with the guidance of the finger and forceps, the ligature shown. The natural explanation of how the ligature got into the bladder would be that there was some inflammatory disturbance around the pedicle, but if such were present it would suppose some evidence of pain, but the only pain complained of was that already mentioned.

THE CHAIRMAN recalled a parallel case.

DR. NEIL instanced a case in which the patient passed a quantity of pus in the urine some time after the removal of a large myoma, but none of the ligatures came away.

A Case of Labour Obstructed by Fibroid Tumour : Red Degeneration of the Tumour.

DR. ROWLETTE read, for Dr. Kinkead and himself, a paper on "A Case of Labour Obstructed by Fibroid Tumour : Red Degeneration of the Tumour." The patient, a multipara, was admitted to the County Galway Hospital, having been thirty hours in labour ; a globular tumour, four inches in diameter, was presenting at the vulva, apparently springing from the anterior lip of the os. As the tumour was very vascular, Dr. Kinkead decided to deliver the patient before removing the tumour. Drawing the latter down and forward, he applied forceps and extracted a living child. When the placenta came away he cut the pedicle of the tumour with an écraseur. The patient left hospital quite well on the thirteenth day. The tumour was a typical example of "red degeneration," showing necrosis and congestion. The condition was probably comparatively rare, and was in most cases associated with pregnancy. It usually gave rise to marked constitutional symptoms—pain, weakness, wasting, gastric disturbances. Dr. Rowlette believed that the staining was due to a diffusion of the blood pigment consequent on a sudden necrosis of a congested tumour.

DR. HENRY JELLET said the Section was indebted to Professor Kinkead not only for his paper, but because he had given Dr.

Rowlette, incidentally, an opportunity of making a very important contribution to the pathology of an obscure condition. If the staining in the case was identical with the staining that would be brought about by the breaking down of the red corpuscles in the blood, by finding a cause for such a breaking down, some explanation would be found for the condition. On a former occasion he had suggested that there was possibly some curious bacterial action which brought about the change, but, with or without a previous bacterial invasion of the tumour, some ferment might be formed in the tumour that would lead to breaking down of the corpuscles.

DR. HASTINGS TWEEDY congratulated Professor Kinkead on the brilliant way in which he had dealt with the case, and brought it to a successful delivery, notwithstanding the immense difficulties in his way.

DR. ASHE, DR. FITZGIBBON and the PRESIDENT also spoke.

DR. ROWLETTE, in reply, said the term degeneration as applied to the condition was a bad one; it was not a degeneration, but a necrosis. In none of Fairbairn's cases was any bacterial infection found. If bacteria gained access to the degenerated fibroid it was likely to be quite different from the simple necrosis in the case before them.

The following card specimens were shown:—

DR. SPENCER SHEILL—Tuberous Sub-chorial Hæmatomata of the Decidua in an early Abortion.

DR. HASTINGS TWEEDY—(a) Ovarian Cysts, 2; (b) Myoma of Uterus, 5; (c) Salpingitis; (d) Epithelioma of Vulva.

SECTION OF MEDICINE.

President—J. M. REDMOND, P.R.C.P.I.

Sectional Secretary—F. C. PURSER, M.D.

Friday, January 18, 1907.

THE PRESIDENT in the Chair.

The Treatment of Gastric Ulcer.

DR. LITTLE briefly referred to the morbid anatomy, the causation, and the symptoms of gastric ulcer, and dwelt on the paramount importance of rest in bed, on the value of fluid diet, and of various drugs for the relief of pain, the arrest of hæmorrhage, and the cure of persistent vomiting, and on the objections to uniting the

stomach to the jejunum. He urged the attempt to cure the ulcer by medical means, though if it failed, he readily invoked surgical assistance. [His paper is published in full at page 161.]

SIR CHARLES BALL discussed briefly the cause of non-malignant gastric ulcer; disowning any belief in the self-digestion theory, and laying great stress on the mechanical effect of food passing over an injured spot in keeping an ulcer from healing. He then gave his experiences of some 40 cases of gastro-enterostomy, pointing out the success of this treatment in non-malignant ulceration. [His paper will be found at page 170.]

DR. LINDSAY (Belfast), discussed the question. [His remarks are published at page 176.]

MR. A. B. MITCHELL (Belfast) followed in the discussion. [His remarks are published at page 179.]

DR. COX said his conviction and experience had been that the majority of cases had a tubercular history. Whatever the subsequent development had been, they were primarily tubercular as regards causation. From that point of view he regarded Dr. Lindsay's remarks as regards the question of generous diet very important. The ulcer must be regarded not primarily as a local condition, but as an outcome of constitutional causes. He thought it was criminal to persevere for years with the washing out of a stomach which had baffled careful treatment; operation was clearly demanded, and it was unfair to the patient, to the surgeon, and to humanity to wait until a condition of hopelessness had been reached.

TINCTURA QUININÆ AMMONIATA.

THE disagreeable taste of ammoniated quinine, which is so great a drawback to its employment, may be to a great extent covered by the addition of syrup of orange. An elixir of ammoniated quinine, made of the same strength as the tincture, flavoured with orange and sweetened, meets the difficulty about as well as it can be met. It is perhaps not very generally known that ammoniated tincture of quinine forms a clear mixture with aerated water, owing to the formation of a soluble carbonate. If the elixir be used in the proportion of a teaspoonful to a wineglassful of aerated water from a siphon, a clear, sparkling and not unpleasant draught is the result.—*The Prescriber*, February, 1907, p. 72.

ACONITE ("Wolf's bane"; "Leopard's bane"; "Women's bane"; "Venus's Chariot"; "Scorpion"; "Monkshood"; "Blue Rocket"), "Queen-Mother" of Poisons: its place in History, in Mythology, in Criminology; in Botany, in Therapeutics, and in Toxicology. By JOHN KNOTT, M.A., M.D., Ch.B. & D.P.H. (Univ. Dub.); M.R.C.P.I.; M.R.I.A.; &c.

THE ACONITE can, I believe, proudly—and justly—claim the dignity of being *Omnium Orbis et Urbis Venenorum Mater et Caput!*

"Aconite alone, if there were nothing else, is sufficient to induce any man to an endless admiration and reverence of that infinite care and diligence which our ancestors employed in searching out the secrets of Nature; considering how by their means we know there is no poison in the world so quick in operation as it. . . ." Thus cogitated the elder Pliny, while he contemplated the mysteries of Nature as manifested in some of the deadly powers of certain of the individual items of the vegetable kingdom. And, after some further reflections, he goes on to say (in the English version of *Philemon Holland, Doctor of Physicke*): "I assure you, that there is nothing so bad but it hath some goodnesse in it, and may be used well. And therefore dispensed withall I looke to be, if I who hitherto have written of no poisons, put downe the description thereof; to the end that a man may know it, and by knowing, take heed and beware." Thus the foremost place in the literature of toxicology was given to this vegetable in the first encyclopædia of *Materia Medica* known to the annals of Western science. This fact by itself furnishes the present writer with the hope that he may be "dispensed withall" on the occasion of his placing before the readers of the DUBLIN MEDICAL JOURNAL the principal items of our present accumulated and capitalised aconite lore and science—even in a rapidly progressive generation of antiseptic medicine, of aseptic surgery, and of bacteriological pathology.

In reflecting on aconite and its antidotes, Pliny proceeds to say—in admiration of the attainments of his predecessors: "Our ancestors in times past staid not thus, but found out and delivered unto vs proper remedies also for wilde beasts; . . ." And, after taking notice of the knowledge displayed by wild beasts in the matter of injurious herbs, he goes on to add: "Well,

be it chance or be it Nature that hath thus ordered the matter, certes a great shame it had bin, that all other creatures should haue knowne thus (as they do) what is good and profitable for them, and man only remain ignorant. But such was the industrie and goodnesse of those ancestours of ours in time past, that they not only deuised means, but also deliuered to posterity, how this venomous herbe Aconitum might be most safely and commodiously mingled in those collyries and medicines which be ordained for the eies." Still, notwithstanding the admiration of Pliny, for the scientific enthusiasm and therapeutic attainments of his ancestors, it must be admitted that it was as an agent of evil, unrivalled in its sphere, that aconite was specially recognised—and utilised—in ancient and mediæval times. Indeed its recognition as a valuable therapeutic agent may be said to date from the publication of the celebrated commentary of Matthiolus on the *Materia Medica* of Dioscorides. In that epoch-making volume, the founder of the modern science of therapeutics reports the results of experiments, at the making of which he assisted, carried out by order of Pope Clement VII. on the persons of two criminals condemned to death, for the purpose of testing the value of an antidote to aconite—the most deadly of all known poisons. Of the persons of the two criminals, one was used as test and the other for control-experiment:—"Hujus immanitatem vidimus nos anno à Christo nato 1524, mense Novembri in Capitolio, Clementis 7. Pont. Max. anno primo. Nam cum decrevisset experiri olei cujusdam præstantissimi vires quod Gregorius Caravita Bononiensis Chirurgus tunc præceptor meus, contra deleteria medicamenta, & venenosorum animalium quorumcunque morsus paraverat, jussit Pontifex venenum dari duobus latronibus, quos leges damnaverant, quo suorum facinorum pœnas luerent, laqueo vitam finire, ut in iis olei hujus experimentum fieret. Horum alterum, qui plurimum Napelli sumpserat, dulciariis panibus commistum, pontificii medici statim oleo inungendum præbent, qui post tertium diem sæpius oleo perunctus evasit incolumis: quanquam non sine magna formadibilium symptomatum accessione. Alterum verò, cui longè minus venenati panis exhibuerant, oleo inungi vetant, ut assumpti veneni effectum, sævitiamque cernerent. Id quod illis rei exitus facile comprobavit: quandoquidem paucis post horis obiit infelix, in omnibus incommodis, cruciatibus, & symptomatibus correptus, quæ ab epoto Napello provenire scribit Avicenna." Before

passing from the record of this remarkable experiment, which saved one life and substituted a less horrible death in the other case, I would just call the attention of my readers, in passing, to the fact that it was carried out 37 years before the birth of Francis Bacon, with whom we were taught—"at school and college"—that the earliest germ of modern experimental philosophy originated; and 104 years before the publication of Harvey's *De Motu Cordis*, the earliest volume which represents English application of experimental physiology.

A second similar experiment is described by this author, in the observation of which he took a principal part:

"Vidimus id etiam Pragæ Metropoli Regni Bohemiæ, anno M.D.LXI. Mense decembri in Latrone quodam suspendio damnato, cui Napelli radix à carnifice data est drachmæ pödere rhodosaccharo excepta, Cæsareis Medicis præsentibus, ut antidoti famosi cujusdam vires explorarentur, an contra Napellum id præstaret, quod antea in altero damnato, qui Arsenici drachmas duas ebibit, efficacissimè præstiterat. Lubens itaque voravit ille lethiferum Napelli pharmacum, utpote qui non solùm sibi conducibilis censebat, veneno in carcere necari, quàm laqueo publicè in patibulo suspendi, sed quod etiam speraret se à nobis servari posse."

A considerable interval having elapsed without the super-vention of any symptoms, the culprit received another dose, as a suspicion of the efficacy of the Bohemian aconite arose in the minds of the medical attendants. Another period of two hours elapsed without consequences. Then the subject of the experiment was left alone in his cell with Matthiolus. After another hour, characteristic symptoms developed, "*tandem obmutuit, & obiit simul, livida facta facie ac si laqueo suspensus.*" And our author then proceeds to a *Historia tertia*, in which a solution was sought of the much-mooted question: "*de lapide, quem Bezoar appellant Arabes.*" The proverbial charm of the number *three* would almost appear to have lent its aid to the efficacy of the famous oriental panacea in this case, for "*Cæter m septima post ebibitum Napellum hora, Veneni tandem vi ab Antidoto extincta, omnia evanuerè symptomata*" (!).

That the therapeutic properties of this plant present features of the keenest interest to the clinical physician is a fact too familiar to every practitioner to require further demonstration. And poisoning by aconite develops a characteristic syndrome of

unique symptomatic and scientific importance and attractiveness. This interest reaches to the general public, as well as to the skilled devotee of the healing art, any member of which may, at some period of life, be exposed to its action. And it presents its special attractions in every instance : to the scientific physician, to whom it offers some of the most interesting clinical symptoms, and may at any time afford special opportunities for the use of his best diagnostic judgment and therapeutic skill ; to the chemist, for the study of the physical properties of its deadly active principle, the alkaloid aconitine ; to the physiologist, for the investigation of its specific influence on the nervous, muscular, secretory, and circulatory systems, respectively ; and to the botanist, for the remarkable life-history of the plant, and the very peculiar—and picturesque—conformation of its floral appendages. Even the latter—such is the effect of popular opinion and nomenclature—still sometimes speaks of *Aconitum Napellus* as *wolf's bane*, from the historic fact that in bygone ages it was generally believed to be peculiarly fatal to wolves (other antique notions of corresponding type will be noticed as we proceed) ; but far more generally as *monkshood*, from the characteristic arrangement of its flowering leaves. Every medical student is soon made acquainted with the historic fact that the root of this plant, which contains the largest proportion of its deadly constituent, has before now been mistaken for that of *horse-radish* ; and, accordingly, been served up to unsuspecting gourmands with the most fatal results. What has made this truly strange mistake so famous is, undoubtedly, the epoch-making instance which occurred some three centuries or so ago at a great banquet which was held in the city of Antwerp—an occasion on which a large proportion of the guests present were fatally poisoned through the mistake referred to. The cosmopolitan fame of this unprecedented case undoubtedly rekindled the old reputation of aconite into a flame even more lurid than that of its classic celebrity. And the poetic allusions crowd in accordingly :

“ All the World's Mortal to 'em then,
And Wine is Aconite to men.”

Cowley, *Anacreont.*, I., 41.

And :

“ Despair, that aconite does prove,
And certain death, to others' love.”

Lansdowne, *To Mwa.*

The unprecedented progress of scientific chemistry during the past century included, among its myriads of important results, the isolation of the "active principle" of *Aconitum Napellus*—a crystalline compound which possesses the special type of molecular structure known to chemists as "alkaloid." From its source it received the name of *aconitine*. And this alkaloid is distinguished—not only for its unequalled power of destroying human life, but for the unparalleled difficulty of tracing its identity in the body after death, when present in but small quantities, and not sought for till complete absorption from the gastro-intestinal surface has taken place. In his more advanced years, Sir Robert Christison, the celebrated Professor of Medical Jurisprudence in the University of Edinburgh, used to relate to his class at lecture incidental illustrations of his subject-matter derived from his personal medico-legal experiences as an "expert witness" in such connection. It is, of course, well known that he was THE great toxicological authority of Great Britain in his generation. Accordingly, his "skilled evidence" was frequently in requisition. On one of those occasions, when he was undergoing cross-examination regarding the possibility of satisfactorily recognising poisonous substances sought for in the dead body, he turned to the judge and proceeded to say: "My Lord, there is but one deadly agent of this kind which we cannot satisfactorily trace in the human body after death; and that is——" when the judge sharply interrupted him with: "Stop, stop, please, Mr. Christison!—it is much better that the public should not know it." Years afterwards it was vividly recalled to the memory of many members of his then student class that Lamson, who was convicted and executed for the poisoning of his nephew with aconitine, was a member of his audience, and was exceptionally assiduous in note-taking, on one of those occasions, when Professor Christison was explaining to his class that aconitine was the poison which the Court had prevented him from naming. The wretched man utilised the deadly weapon which he had in his student days been taught by the highest living authority to regard as "safe," as well as being so uniquely effective. But, as my readers will remember, the aconitine in his case was identified by its physiological effects, which had become thoroughly familiar to skilled experimentalists in course of the interval that had elapsed since the unhappy Lamson had completed his curriculum. It is, perhaps, my duty to observe, in passing, that this

forward seven-league stride in our knowledge of the previously unsolved mysteries of the most virulent of all poisons is entirely due to the fruitful researches of the much-abused vivisector. And it affords me additional gratification to be able to point out that the original inspiration and effective stimulus of recent scientific advancement in this special department were supplied from this city, and in the pages of the DUBLIN MEDICAL JOURNAL.

There is plenty of evidence in existence to show that the deadly powers of aconite had, ever since the pre-classical centuries, received a great deal of attention in Italy—the nursery of the skilled poisoner. There can be no doubt, too, that the term *aconitum* in classical and in mediæval lore had a connotation of pre-scientific vagueness; it was, very evidently, often used as a kind of generic term to indicate a vegetable agent or preparation of peculiarly fatal properties. This vagueness in the use of the term is distinctly indicated in Virgil's employment of it, in his patriotic appreciation of the climatic superiority of his native Italy—compared with the torrid attractions of the gorgeous Orient:

“ At rabidæ tigres absunt, et sæva leonum
Semina: nec miseros fallunt *aconita* legentes: ”

Georg. II., 151-2.

—the poisonous aconite herb being indigenous in Italy, a fact which was well known, and is pointed out by Servius himself, who refers his inspired master's use of the term to “poetic art.”

Other Roman poets have made copious references to the special uses of aconite which appear to have become almost familiar in the Eternal City's palmy days of luxury and vice. Thus that unimpeachable authority, Ovid:

“ Illa potest vigilis flammas extinguere Vestæ
Et rapere e templis, Inachi, sacra tuis;
Et dare mista viro tritis *aconita* cicutis:
Accepto Venerem munere si qua negat.”

Art. Amand., III., 463-6.

And further:

“ Imminet exitio vir conjugis, illa mariti;
Lurida terribiles miscent *aconita* novercæ;
Filius ante diem patris inquit in annos.”

Metamorph., I., 146-8.

And the poetic licence in the connotation of the term

"aconite," to which I have already referred, is unmistakably indicated in these verses :

"Hujus in exitium miscet Medea, quod olim
Attulerat secum Scythicis *aconiton* ab oris."

—VII., 406-7.

The poetic fame of Medea, in the miraculous ways and means of both destruction and renovation, would readily suffice to establish the celebrity of her special re-agent. And in this connection it will be of interest to note how Sir Thomas Browne, witch-finder as he was, explains away a "Vulgar Errour:" "That Medea the famous Sorceresse could renew youth, and make old men young againe, was nothing else but that from the knowledge of simples shee had a receipt to make white haire black, and reduce old heads into the tincture of youth againe." On this occasion, the iatro-chemical instincts of the famous Norwich physician appear to have completely overwhelmed the diabolico-miraculous!

The special criminal applications of the deadly powers of aconite, to which Ovid referred in the above quotations, receive appalling emphasis in the verses of Rome's most ruthless satirist, Juvenal. We find the indignant comment on the rewards of financial prosperity :

"Qui dedit ergo tribus patruis *aconita* ; vehatur
Pensilibus plumis, atque illinc despiciat nos :"

Sat., I., 158-159.

—on the criminal possibilities of the human female unrestrained :

"Nos utinam vani ! sed clamat Pontia, Feci,
Confiteor, puerisque meis *aconita* paravi,
Quæ deprensa patent." —, VI., 638-640.

—on the superior wickedness of the over-lying social strata of the period :

" . . . Sed nulla *aconita* bibuntur
Fictilibus : tunc illa time, cum pocula sumes
Gemmata, et lato Setinum ardebit in auro."

—, X., 25-27.

—and on the loftier flight of the actual ruthlessness of a contemporary Nero than that of a mythical Orestes :

" sed nec
Electræ jugulo se polluit, aut Spartani
Sanguine conjugii, nullis *aconita* propinquis
Miscuit, in scena nunquam cantavit Orestes."

—, VIII., 217-220.

It is hardly necessary to point out to the skilled reader that the term *aconite* is used by the great satirist with a very broad licence.

But even the gruesome poetic conceptions of Ovid and Juvenal are surpassed in the biographic prose of Plutarch—representative, as the latter is, of the actual facts of human existence. In the concluding paragraph of the *Life of Marcus Crassus* we are told (North's version): "But afterwards *Hyrodes* cruelty, and *Surena's* foul perjury and craft, were in the end justly revenged upon them both according to their deserts. For King *Hyrodes* envying *Surena's* glory, put *Surena* to death. And *Hyrodes* fell into a disease that became a dropsie, after he had lost his son *Pacorus* who was slain in a battell by the ROMANS. *Phraates* his second Son, thinking to set his father forwards gave him drink of the juyce of Aconitum. The dropsie received the poison, and the one drave the other out of *Hyrodes* body, and set him on foot again. *Phraates* perceiving his father to amend upon it, to make short work, with his own hands strangled him." (The reader will have an opportunity, in the perusal of a subsequent quotation, of noticing the identity of the toxicological therapeusis of the elder Pliny with that of the above.)

The appearance of the remarkable "*helmet* flowers" combined—with the known destructive properties of the whole plant, throughout its various sections—to give to the "*monk's-hood*" a conspicuously prominent position in the temple of ill-fame, from even a very early date in the evolutionary progress of human knowledge. Accordingly, the imaginative ingenuity of classic times displayed a liberal expenditure of its powers in its accounts of the original production, the physical peculiarities, and the antidotal—or *antipathetic*—history of aconite. In the grand old pagan "*Encyclopædia of Natural History*" we are told (Philemon Holland's version) how "the Poets haue feined a tale, that this herb should be ingendered first of the fume that the dog *Cerberus* let fall vpon the ground, frothing so as he did at the mouth for anger when *Hercules* plukt him out of hell: and therefore it is forsooth, that about Heraclea in Pontus (wher is to be seen that hole which leadeth into hel) there groweth Aconit in great plenty." And this same uniquely interesting authority informs all readers whom it may concern that "we know there is no poison in the world so quicke in operation as it, insomuch as if the shap or nature of any liuing creature of female sex be but touched therewith, it will not liue after it one day to an end. This was that

poison wherewith *Calphurnius Bestia* killed two of his wiues lying asleep by his side, as appeareth by that challenge and declaration which *M. Cæcilius* his accuser framed against him. And here-upon it was, that in the end of his accusatory inuectiue he concluded with this bitter speech, That his wiues died vpon his finger."

This latter peculiar manifestation of its malignant powers gave aconite the additional soubriquet of *Theliphonon* ("female-bane," *women's bane*) by which it was sometimes distinctively indicated. The root was supposed by some of the ancient botanists to be "like vnto a sea crabfish: and therefore some haue named it *Cammaron*." And we are further informed: "for that the root doth turn and crook inward in manner of a scorpions taile, there be that giue it the name *Scorpion*. There wanted not others who chose rather to call it *Myoctonon*, because with the very sent it is able to kill mice and rats a great way off." Regarding the appellation by which it is specially known to modern botanists, we are told that: "It groweth naturally vpon bare and naked rocks, which the Greeks cal Aconas; which is the reason (as some haue said) why it was named *Aconitum* . . . Yet there be others who assigne another cause of that denomination, to wit, for that it is as forcible and as speedy in working the death of those whom it toucheth as the hard-stone or rag in turning or wearing the edge of any yron toole, for no sooner commeth it neere vnto the body and is applied vnto it, but the quicke operation is sensibly found." And yet another etymological opinion—as if in illustrative demonstration of the hopeless irreconcilability of doctoral dicta, in each and all of the varied departments of the tangled domain of human knowledge: we find Theophrastus, that other colossal authority on matters vegetable of Pagan times, deriving the name of his aconite "from Aconae, a certain towne, neer to which it groweth abundantly." Ovid unquestioningly accepts the authenticity of the derivation first (of the above-) mentioned by Pliny:

Quæ, quia nascuntur dura vivacia caute,

Agrestes aconita vocant

Metamorph., VII., 419-420.

It has also been derived from ἀκμή (javelin, dart, arrow), because some barbarous nations employed the juice to poison the points of their arrow and spears; others have referred the source to ἀκοντίζω (to hit or strike) because it hastens death. In this

connection the words of Xenophon possess a definite interest : οὐδὲ γὰρ τοξεύειν, οὐδὲ ἀκοντίζειν ἄνθρωπον ἐπετρέπομεν ἡμῖν. And Pena, who keenly discusses this derivation, expresses the opinion that "Aptior fuerit nomenclatura interpretatio, si eam ab herbæ succo, vel radice, quibus quasi cote spicula a venatoribus affricta & subacta, cælerius subirent, & perniciem adferrent, quam si a cautibus, aut a pagi cognomine deduces," but he, nevertheless, points out that "possit etiam ἀπὸ τοῦ ἀκοντίζειν deduci, quemadmodum τοξίκον ἀπὸ τοῦ τοξεύειν & non a taxo."

That a variety of poisonous herbs were indiscriminately indicated in ancient times by the name "aconitum" must, I think, be admitted. The name connoted hardly anything more definite to the popular intellect than a deadly herbal poison. The celebrated author of the *Paradisus in Sole* observes, too, of the nomenclature of "scientific" botanists : "But the name of *Aconitum* was referred to many sorts of poysons, and poysounous herbes, one much differing in face, though not quality from another, as hath been shewed before in the white Ellebor and others. . . ." He himself enumerates nine varieties and adds : "I call all these kinds Woolfes banes and Helmet flowers, not onely for a distinction from the other sorts that follow (for all these are in face and forme of growing, and in leaves, rootes, flowers and seede one, not much differing one from another) but to shew you that it is even *Dioscorides* his distinction, who maketh this his *Aconitum alterum*, which he saith was called *Lycotconum* and *Cynoconum*, although his former *Aconitum* called *Pardalianches* did kill Woolves as well as this, and that such different herbes should not goe in English under one common name of Woolfes bane, whereby it should bee hard to understand in the naming of them what kind is meant." In his next chapter Parkinson deals with "*Aconitum Pardalianches sive Thora*, Leopards bane," and includes three varieties.

With regard to linguistic variations of appellation, we are told by the encyclopædic (and conscientious) John Parkinson that—besides the "Latine *Aconitum & luparia*"—"It is called of the Arabians *Chanach adip* or *adib*, id est, *strangulatorem lupi*, of the Italians *Aconite & Luparia*, of the Spaniards *Yerua matta louo*, of the French *Tue loup*, of the Germans *Wolffswurtz*, of the Dutch *Woolfwurtel*."

Under the heading of "*The Vertues*" we are told by the same unimpeachable authority that :

“ All these plants are poisonous and deadly to mankinde, to be taken inwardly any manner of way, as that feast at *Antwerpe* sheweth, where by ignorance the leaves of *luparia* or *Napellus* being put as a sallet herbe with others, many that did eate thereof died, after the violent passions they endured for the time : it is also as deadly to Dogs, Wolves, and other creatures, who shall take thereof, either the juyce of the herbe or roote, or the herbe or roote it selfe, put into flesh, and given them to eate : in the juyce of the rootes especially, the hunters of wilde beastes, doe use to dippe the heads of their arrowes they shoote, or darts they throw at the wilde beasts, which killeth them that are wounded therewith speedily ; yet it is said that the flesh of the beasts so killed, is no whit poysonous but safe, and eateth more tender than of others of the same kinde, not killed in the same manner, so as it abide undressed for a day and a night. The ordinary physicall remedies that is to be used for any that have taken of these herbes, is first to procure vomiting, with all the speede possible, to avoid as much of the evill substance that remaineth in the stomacke as may be ; and secondly glisters, both to clense the bowells, and to draw the evill quality downewards that way : and thirdly preservatives to defend the heart and vitall spirits from suffocation, or the bloud from putrefaction or congelation ; which are effected by taking Mithridate, or rather *Venice Treacle*, which is more appropriate for poysons ; as also to drinke the decoction of *Origanum*, Rew, Horehound, Wormewood, or Wormewood wine ; as also Southernwood, *Chamæpitys*, or ground Pine, and *Gentiana* : a dramme of the true *Opobalsamum* taken with hony is much commended, and so is Castor, Pepper and Rue, of each a little quantitie taken in wine. Some commend also to drinke that wine, wherein iron, or gold, or silver, made red hot hath beene quenched. *Petrus Aponensis* in his Booke of poisons, commendeth the use of *Terra lemnia*, a dramme or two, thereof to be taken in warme drinke ; but above all hee saith that *Aristolochia longa*, or the long rooted Birthwort, is the most especiall antidote or remedy against all Aconites : But behold the wonderfull goodnesse of God ; who although he hath given to these plants so deadly faculties, yet hath he endued them also with other properties, very beneficiall to mans health : as that the juice or distilled water of *Aconitum Fonticum* of both sorts, dropped into the eyes, taketh away the inflammation or rednesse in them, as also cleareth them from any haw, or pinne or webbe, growing

in or upon them . . . certainly if either the rootes or seedes of these Aconites, or of the other Helmet flowers be beaten into powder, or the juyce of them boyled with oyle, or Hogges fat, and the head and body anointed therewith, it will kill lice and vermine breeding therein : the lye also wherein the leaves, rootes, or seede, hath beene boyled, doth the same, and clenseth the head also from scurfe and dandriffe. *Galen* saith that they are used in foule ulcers and sores, to consume the dead flesh, so as the sores be not in the mouth or privities, which by reason of their vicinitie to the spirits and life are not to be dealt with in such sort . . . [*Anthora*.] The roote is said by *Hugo Solerius*, to purge the body very strongly, of waterish and vicious humors, both by vomit and by the stoole, if the quantitie of a beane, be taken in broth or in wine : by reason of the exceeding bitterness of the roote, it killeth all sorts of wormes in the body : it is also saith *Guainerius*, by mine owne experience and sight, as effectuell as *Dictamnus* unto all the purposes whereunto it serveth : the powder of the rootes taken in wine, is a most speedie and speciall remedie, against the winde collicke, which the *Savoyards* about *Diam*, where it groweth abundantly, know very familiarly, and call it *L'herbe du machon*, that is, the wind collicke herbe, and suppose that it having two round rootes, the one will be full and solide one year (as it is in the *Orchides* or *Satyrions*) and the other lanke, which changeth to be solide the next yeare, when the other that was firme in the former yeare, will then become lanke ; that the sound roote will ease the winde chollicke, and the lanke procure it : the same rootes also used inwardly, is not onely the chiefe and principall Antidote or remedie, against the poyson of these Wolfes banes, and Helmet flowers, but of the Leopards bane, . . . and all other poysonous herbes whatsoever : and against the venome of all serpents and other venomous beasts or creatures, and is also a most soveraigne remedy against the plague or pestilence, and all other infections, or contagious diseases, which raise spots, pockes, or markes in the outward skinne ; by expelling the poyson from within, and defending the heart as a most soveraigne Cordiall."

As will readily be anticipated, the appallingly destructive properties of the aconite plant furnished the riotously productive imaginations of the ancient botanists and pharmacists with material specially suitable to the creation of still more weird capabilities—in subversion of the laws and phenomena of vital

force, and successful antagonism to the usual functions of animal existence. Accordingly, the reader whose mental prominences have been rendered callous by too varied experiences in the by-paths of scientific lore, will feel no surprise when asked the plain question: "who knoweth not, that scorpions if they be but touched with Aconite, presently become pale, benumbed, astonished and bound, confessing (as it were) themselves to be vanquished and prisoners; contrariwise, let them but touch the white Ellebore, they are vnbound and at liberty again; they recouer (I say) their former vigor and vertue; whereby we may see that the Aconite also giveth the bucklers to enemies twaine, pernicious poisons both, the one to it selfe, and the other to all the world." (Pliny: *Natural History*, Holland's version.)

There can, I venture to suggest, be little doubt that the origin of the idea of the antipathy between the scorpion and the aconite was originally derived from the fancied resemblance, above referred to, of the curve of the tail of the former to that which characterises the roots of the latter. Such belief forms a conspicuous item of the vegetable lore of classic antiquity, which waxed in stature and strength—if not precisely in wisdom—during the centuries of the growth of the mystic faith of the Middle Ages; till it assumed the all-embracing proportions of the doctrine of "signatures," according to the teaching of which the properties allotted by creative Providence to every individual plant were superficially indicated to the observant eye by the features of its external physiognomy. Hence was derived the original germ of the information that: "being given in hot wine it is a counterpoison against the sting of scorpions: for of this nature it is, that if it meet not with some poison or other in mens bodies for to kill, it presently sets vpon them and soon brings them to their end: but if it incounter any such, it wrestleth with it alone, as hauing found within a fit match to deale with, neither entreth it into this fight vnlesse it find this enemy possessed already of some noble and principall part of the body, and then beginneth the combat: a wonderfull thing to obserue, that two poisons, both of them deadly of themselves and their own nature, should die one vpon another within the body, and the man by that mean only, escape with life." Those readers who, in their pursuit of knowledge, alternate the frivolities of fable with the ponderosities of science will here be reminded of the unprecedented and unhopd-for doorway of deliverance which the dexterous

hand of an anxious Providence opened for the escape of the late Baron Munchausen, in that desperate moment of the latter's adventurous existence when he had lain hopelessly down on his face between an open-mouthed crocodile on the one hand and a springing lion on the other ! And a further item of ambidexterous antipathy is offered by our mysterious monkshood, according to the same inexhaustible oracle of antique scientific lore : " The people about Heraclea to kil the panthers which breed in those parts, vse to rub with Aconite certain gobbets of flesh, which they doe lay about the mountains as a bait and bane for them ; and vnlesse by this meanes they did destroy them, no doubt they would fill the whole countrie, which is the cause that some call it Pardalianches i. libard-bane ; but they again on the other side, presently haue recourse to the excrements of a man, as I haue before declared, the only counterpoison whereby they saue themselues."

(To be continued.)

LEWIS' CIRCULATING LIBRARY, LONDON.

DURING the past month (February) Lewis' Circulating Library was established in more convenient quarters, in 24 Gower Place, adjoining the old premises at 136 Gower Street, London. The new shop faces Gower Street and Gower Place, and will afford greater convenience to customers to see the latest books in all branches. The Library is entered from the end of the shop, and has three windows facing Gower Place. Subscribers will be able to examine the books on the shelves when making exchanges ; and convenience for writing or making extracts will be provided, the idea being to make this department a reading room for subscribers, especially those residing in the suburbs or in the provinces. The telephone in this room will also be free for subscribers' use, so that clients from the country may arrange appointments conveniently. Lavatory accommodation is also provided. The premises, which will still be known as 136 Gower Street, London, are within a minute's walk of the Gower Street Metropolitan Station, and the new Tube Station at the junction of Tottenham Court Road, Euston Road, and Hampstead Road is only a few minutes' distance.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, January 26, 1907.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending January 26, 1907, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 24.6 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,117,547. The deaths registered in each of the four weeks ended Saturday, January 26, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Jan. 5	Jan. 12	Jan. 19	Jan. 26			Jan. 5	Jan. 12	Jan. 19	Jan. 26	
22 Town Districts	26.6	25.4	23.1	24.6	24.9	Lisburn	27.3	40.9	18.2	31.8	29.5
Armagh	13.7	6.9	13.7	6.9	10.3	Londonderry	12.3	11.0	13.5	24.6	15.4
Ballymena	43.1	28.7	9.6	23.9	26.3	Lurgan	17.7	8.9	17.7	13.3	14.4
Belfast	23.8	23.4	23.7	22.8	23.4	Newry	29.4	12.6	8.4	25.2	18.9
Clonmel	30.8	25.6	15.4	10.3	20.5	Newtownards	11.4	5.7	17.2	17.2	12.9
Cork	31.5	31.5	24.7	24.0	27.9	Portadown	10.3	20.7	20.7	10.3	15.5
Drogheda	12.3	16.3	24.5	20.4	18.4	Queenstown	6.6	6.6	13.2	33.0	14.9
Dublin (Reg. Area)	31.9	29.0	27.5	28.6	29.2	Sligo	33.6	19.2	14.4	19.2	21.6
Dundalk	16.0	23.9	16.0	27.9	21.0	Tralee	31.7	37.0	15.9	26.4	27.7
Galway	31.1	19.4	19.4	19.4	22.3	Waterford	31.2	25.3	17.5	13.6	21.9
Kilkenny	34.3	44.2	14.7	44.2	34.3	Wexford	28.0	28.0	18.7	37.4	23.0
Limerick	13.7	27.3	16.4	16.4	18.5						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, January 26, 1907, were equal to an annual rate of 1.1 per 1,000, the rates varying from 0.0 in fifteen of the districts to 7.8 in Galway—the 5 deaths from all causes registered in that district including two from diphtheria. Among the 162 deaths from all causes registered in Belfast are 3 from whooping-cough, one from diphtheria, and 5 from diarrhoeal diseases. The 35 deaths from all causes in Cork include one each from whooping-cough and diarrhoea; and of the 7 deaths from all causes in Dundalk one is from measles.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 390,691, that of the City being 300,850, Rathmines 35,606, Pembroke 27,854, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, January 26, 1907, amounted to 185—95 boys and 90 girls; and the deaths to 225—111 males and 114 females.

DEATHS.

The registered deaths represent an annual rate of mortality of 30.0 in every 1,000 of the population. Omitting the deaths (numbering 11) of persons admitted into public institutions from localities outside the Area, the rate was 28.6 per 1,000. During the four weeks ending with Saturday, January 26, the death-rate averaged 30.2, and was 1.1 above the mean rate for the corresponding portions of the ten years, 1897–1906.

The 225 deaths registered include one death from scarlet fever, 6 deaths from whooping-cough, and one death from enteric fever. In each of the three preceding weeks, deaths from scarlet fever were 0, 0, and 0; deaths from whooping-cough were 7, 2, and 5; and deaths from enteric fever were 0, one, and one. There were 5 deaths from influenza—in each of the three preceding weeks, deaths from influenza were 6, 3, and 4.

There was one death from lobar pneumonia, broncho-

pneumonia caused 5 deaths, and 16 deaths were due to *pneumonia* (not defined).

The deaths from all forms of tuberculous disease amounted to 41. This figure comprises 14 deaths from tubercular phthisis, 19 deaths returned as from *phthisis*, 4 deaths from tubercular meningitis, and 4 deaths from other forms of the disease. The total deaths from all forms of tuberculous disease were 30, 38, and 37 in each of the three preceding weeks.

The deaths from malignant diseases include 4 deaths from carcinoma, 2 deaths from sarcoma, and one death from cancer (undefined).

The deaths of 6 infants, prematurely born, were registered.

There were 9 deaths from diseases of the brain and nervous system. Of these 5 were deaths of infants under one year of age from *convulsions*.

Diseases of the heart and blood vessels caused the deaths of 33 persons, and 40 deaths were due to bronchitis.

Of 6 deaths resulting from accidental causes, one was by vehicles and horses, one was by burn $\acute{e}$, and one was by drowning. There was one death caused by homicidal violence.

In 4 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 2 infants under one year of age and the death of one person aged 85 years.

Forty-six of the persons whose deaths were registered were under 5 years of age (29 being infants under one year, of whom 8 were under one month old) and 59 were aged 60 years and upwards, including 30 persons aged 70 and upwards, of whom 13 were octogenarians, and one (a woman) was stated to have been aged 91 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin : Mr. Fawcett, Executive Sanitary

Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended January 26, 1907, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping cough	Cerebro-spinal Fever	Total
City of Dublin	Jan. 5	-	•	•	4	2	-	4	-	3	3	10	-	•	•	•	29
	Jan. 12	-	•	•	10	4	-	4	-	6	2	18	-	•	•	•	48
	Jan. 19	-	•	•	3	-	-	4	-	4	2	14	-	•	•	•	38
	Jan. 26	-	•	•	9	-	-	8	-	5	3	10	-	•	•	•	31
Rathmines and Rathgar Urban District	Jan. 5	-	•	•	-	-	-	3	-	-	-	-	-	•	•	•	3
	Jan. 12	-	•	•	2	-	-	-	-	-	-	-	-	•	•	•	4
	Jan. 19	-	•	•	-	-	-	-	-	-	2	2	-	•	•	•	3
	Jan. 26	-	•	•	-	-	-	2	-	-	1	-	-	•	•	•	3
Pembroke Urban District	Jan. 5	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2
	Jan. 12	-	1	-	-	-	-	-	-	-	-	-	-	-	3	-	4
	Jan. 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
	Jan. 26	-	-	-	2	-	-	-	-	-	-	-	-	-	11	-	13
Blackrock Urban District	Jan. 5	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	3
	Jan. 12	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	3
	Jan. 19	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	3
	Jan. 26	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	3
Kingstown Urban District	Jan. 5	-	•	•	3	-	-	-	-	-	-	-	-	•	•	•	4
	Jan. 12	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	3
	Jan. 19	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	3
	Jan. 26	-	•	•	3	-	-	1	-	-	-	1	-	•	•	•	5
City of Belfast	Jan. 5	-	•	•	26	-	-	9	2	6	1	10	-	•	•	•	54
	Jan. 12	-	•	•	20	-	-	4	1	2	3	11	-	•	•	•	41
	Jan. 19	1	•	•	10	-	-	3	2	2	5	6	1	•	•	•	31
	Jan. 26	-	•	•	18	-	-	9	-	5	3	6	1	•	•	•	42

The Registrar of Belfast Urban No. 9 reports :—"Two deaths from cerebro-spinal meningitis were registered this week from Royal Victoria Hospital."

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended Saturday, January 26, 1907, 6 cases of measles were admitted into hospital, 5 patients were dis-

charged, and 29 cases remained under treatment at its close.

Thirteen cases of scarlet fever were admitted to hospital, 18 were discharged, and 73 cases remained under treatment at the close of the week. This number is exclusive of 14 convalescents under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

Two cases of typhus were admitted to hospital, and 7 cases remained under treatment at the close of the week.

Eight cases of diphtheria were admitted to hospital, 2 were discharged, there was one death, and 32 patients remained under treatment at the close of the week.

Six cases of enteric fever were admitted to hospital, 4 were discharged, there was one death, and 36 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 6 cases of pneumonia were admitted to hospital, 5 were discharged, there were 2 deaths, and 25 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, January 26, 1907, in 76 large English towns, including London (in which the rate was 18.0), was equal to an average annual death-rate of 18.2 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 19.1 per 1,000, the rate for Glasgow being 18.9 and that for Edinburgh 22.0.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, M.D., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended January 26. From this Report it appears that of a total of 44 cases notified 18 were diphtheria, 18 scarlet fever, 5 erysipelas, 2 puerperal fever, and one enteric fever. Among the 302 cases of infectious diseases in hospital at the close of the week were 106 cases of scarlet fever, 51 of diphtheria, 2 of membranous croup, 29 of whooping-cough, 24 of measles, 23 of erysipelas, and 15 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of January, 1907.

Mean Height of Barometer, - - -	30.303 inches.
Maximal Height of Barometer (23rd, 9 a.m.), -	30.925 ..
Minimal Height of Barometer (1st, 9 p.m.), -	28.958 ..
Mean Dry-bulb Temperature, - - -	41.7°.
Mean Wet-bulb Temperature, - - -	39.7°.
Mean Dew-point Temperature, - - -	37.0°.
Mean Elastic Force (Tension) of Aqueous Vapour	.223 inch.
Mean Humidity, - - -	84.0 per cent.
Highest Temperature in Shade (on 1st), -	54.1°.
Lowest Temperature in Shade (on 25th), -	27.5°.
Lowest Temperature on Grass (Radiation) (25th),	23.6°.
Mean Amount of Cloud, - - -	63.1 per cent.
Rainfall (on 9 days), - - -	.428 inch.
Greatest Daily Rainfall (on 1st), - - -	.188 ..
General Directions of Wind, - - -	W., SW.

Remarks.

A month remarkable for its high mean atmospheric pressure (30.303 inches), its scanty rainfall (only .428 inch in Dublin on only 9 days and extending over only 20 hours), its warm anticyclonic SW. and W. winds from the 5th to the 18th, and its biting anticyclonic NE. and SE. winds from the 19th to the 25th. The former anticyclone was central over the ocean to the southward of Ireland and over the Bay of Biscay—hence the warmth of its SW. and W. to NW. winds, which raised temperature above the freezing point all over the British Isles, France and Germany. The latter anticyclone on the contrary advanced steadily south-westwards from the White Sea to the Gulf of Riga between Sunday, the 20th, and Wednesday, the 23rd. At 6 p.m. of Tuesday, the 22nd, the barometer read 31.58 inches at Riga, and at 8 a.m. of Wednesday, the 23rd, the isobar of 31 inches stretched westward to Ulster, the barometer reading 31.01 inches at Donaghadee. This vast anticyclone of abnormal intensity caused a fresh or strong current of wind from the eastward to blow across Central Europe to France and the British Isles; this wind carried with it bitter frost, the thermometer falling to —8° at Munich on the 22nd and to —22° at Riga on the 23rd.

Even in Ireland a minimum of 17° was recorded at Birr Castle on the morning of the 24th, and during the following night at Llangam-march Wells, in Wales, the sheltered thermometer fell to 5° , and the instrument exposed on the grass to 1° . An extraordinary circumstance is that at 8 a.m. of Wednesday, the 23rd, the thermometer stood as high as 59° at Seydisfjord on the east coast of Iceland, where a SW. gale was blowing at the time. This station in the far North-west was 40° warmer than Constantinople, 62° warmer than Munich, and 81° warmer than Riga on that eventful morning.

In Dublin the arithmetical mean temperature (42.7) was above the average (41.6°) by 1.1 degrees; the mean dry-bulb readings at 9 a.m. and 9 p.m. were 41.7° . In the forty-two years ending with 1906, January was coldest in 1881 (M. T. = 33.2°), and warmest in 1898 (M. T. = 47.8°). In 1906 the M. T. was 43.9° .

The mean height of the barometer was 30.303 inches, or 0.429 inch above the corrected average value for January—namely, 29.874 inches. The mercury rose to 30.925 inches at 9 a.m. of the 23rd, having fallen to 28.958 inches at 9 p.m. of the 1st. The observed range of atmospheric pressure was, therefore, 1.967 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 41.7° , or 1.3° below the value for January, 1906. Using the formula, *Mean Temp.* = *Min.* $\times$ (*Max.* — *Min.* + .52), the M. T. becomes 42.8° , compared with a thirty years' (1871–1900) average of 41.7° . The arithmetical mean of the maximal and minimal readings was 42.7° , compared with a thirty years' average of 41.6° . On the 1st the thermometer in the screen rose to 54.1° —wind, SW.; on the 25th the temperature fell to 27.5° —wind, W. The minimum on the grass was 23.6° , also on the 25th.

The rainfall was only .428 inch, distributed over 9 days. Of this amount .188 inch fell on the 1st. The average rainfall for January in the thirty-five years, 1866–1900, inclusive, was 2.230 inches, and the average number of rainy days was 18. The rainfall, therefore, and rainy days were much below the average. The record rainfall for January was in 1895—namely, 5.711 inches on 24 days. In 1876, only .406 inch was measured on but 9 days. In 1906, 4.127 inches fell on 22 days.

The atmosphere was foggy on the 1st, 4th, 21st and 25th. High winds were noted on 13 days, reaching the force of a gale on

3 days—the 1st, 28th and 29th. Snow or sleet fell on the 2nd, 3rd, 23rd, 24th, 25th, 26th and 29th; hail on the 1st, 2nd, 23rd, 25th, 29th and 30th. Temperature reached or exceeded 50° in the screen on 10 days; while it fell to 32° in the screen on 4 nights, compared with 2 nights in 1906 and 1905, 3 in 1904, 7 in 1903 and 1902, 3 in 1901, 2 in 1900, 4 in 1899, only 1 night in 1898, 13 nights in 1897, only 3 in 1896, but 18 in 1895. The minima on the grass were 32° or less on 16 nights, compared with 11 nights in 1906, 9 nights in 1905, 11 in 1904, 9 in 1903, 12 in 1902, 11 in 1901, 13 in 1900, 16 in 1899, only 3 in 1898, 21 in 1897, 8 in 1896, and 29 in 1895.

In Dublin the rainfall up to January 31st, 1907, amounted to only .428 inch on but 9 days compared with 4.127 inches on 22 days in 1906, 1.897 inches on 14 days in 1905, 2.535 inches on 19 days in 1904, 3.269 inches on 20 days in 1903, 1.614 inches on 12 days in 1902, 2.672 inches on 17 days in 1901, 2.579 inches on 27 days in 1900, only .406 inch on 9 days in 1876, and with a thirty-five years' average (1866–1900) of 2.230 inches on 18 days.

Mr. William J. Good reports that, at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 30.299 inches, the range of atmospheric pressure being from 28.953 inches at 9 p.m. of the 1st to 30.928 inches at 9 a.m. of the 23rd. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 42.3° . The arithmetical mean of the daily maximal and minimal temperatures was 42.7° . The screened thermometers rose to 54.4° on the 1st, and fell to 27.5° on the 25th. On the 24th the grass minimum was 20.7° . On the 16th the black bulb in *vacuo* rose to 75.1° . Rain fell on 6 days to the amount of .409 inch, the greatest fall in 24 hours being .184 inch on the 1st. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 46.9 hours, of which 5.2 hours occurred on the 30th. The mean daily sunshine was 1.5 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was 41.0° ; at a depth of 4 feet it was 44.0° .

The rainfall at the Ordnance Survey Office, Phoenix Park, Dublin, was .569 inch on 11 days, the maximum in 24 hours being .250 inch on the 1st. The total amount of sunshine was 53.5 hours, the largest daily amount was 7.2 hours on the 30th. The thermometer fell to 22.4° in the screen on the night of the 24th.

Dr. Arthur G. Price, writing from the Burnaby Estate, Greystones, Co. Wicklow, reports that the rainfall at that place was only .550 inch on 9 days, compared with 4.065 inches on 14 days in 1906 at Knockdolian, 1.005 inches on 11 days in 1905, 2.735 inches on 17 days in 1904, 3.300 inches on 15 days in 1903, 1.860 inches on only 9 days in 1902, and 4.035 inches on 16 days in 1901.

Miss Muriel E. O'Sullivan returns the rainfall at White Cross, Stillorgan, Co. Dublin, at .440 inch on 7 days, .190 inch being measured on the 1st, and .175 inch on the 28th. The thermometer on the grass fell to 20° on the 24th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was only .362 inch on 6 days, compared with 3.288 inches on 20 days in January, 1906. The greatest fall in 24 hours was .175 inch on the 1st. The mean shade temperature was 38.6°, the extremes being—highest, 50° on the 1st; lowest, 24° on the 31st.

Dr. Arthur S. Goff reports that the rainfall at Lynton, Drum, Co. Dublin, was .54 inch on 7 days, the greatest daily measurement being .23 inch on the 1st. The thermometer in the shade ranged from 52° on the 1st to 27° on the 25th. The mean shade temperature was 41.8°. There were snow showers on the 22nd and 29th, and hail and sleet fell on the 28th.

The Rev. Arthur Wilson, M.A., reports that rain fell on 22 days at the Rectory, Dunmanway, Co. Cork, to the amount of 2.70 inches. The heaviest falls were .71 inch on the 1st, .41 inch on the 2nd, and .29 inch on the 19th. On the whole, it was a dry, cold month. Thunder and lightning occurred on the evening of the 2nd.

Dr. Christopher Joynt, F.R.C.P.I., recorded .431 inch of rain on 8 days at 21 Leeson Park, Dublin. The heaviest fall in 24 hours was .185 inch on the 1st.

Mr. Robert O'B. Furlong, C.B., returns the rainfall at Cloneevin, Killiney, at .53 inch on 6 days. The maximal fall in 24 hours was .27 inch on the 28th. The average January rainfall of the 22 years (1885–1906) was 2.422 inches on 17 days. The present record is the lowest rainfall for January at Cloneevin—only .06 inch fell on but 3 days from the 2nd to the 27th. In 1895, on the contrary, 5.93 inches were measured on 24 days, and in 1906, 4.08 inches on 22 days. Snow, sleet, or hail fell on the 28th and 29th.

PERISCOPE.

ROYAL ARMY MEDICAL CORPS.

THE Director-General of the Army Medical Service has forwarded for publication the following list of successful candidates for Commissions in the Royal Army Medical Corps at the recent Examination in London, for which seventy-eight candidates entered :—

Marks	Names, Medical School and Qualifications.
612	W. K. Beaman, Charing Cross Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
580	C. Cassidy, St. George's Hospital, B.A. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).
575	A. D. Fraser, Marischal College, Aberdeen, M.B., B.Ch. (Univ. Aberdeen).
565	M. P. Leahy, Univ. Dublin, B.A., M.B., B.Ch. (Univ. Dubl.).
555	F. T. Turner, King's College Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
550	A. I. Fortescue, Univ. Aberdeen, M.B., B.Ch. (Univ. Aberdeen).
548	H. G. Gibson, Guy's Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
546	J. L. Wood, St. Thomas's Hospital, B.A. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).
538	S. Field, St. Mary's Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
533	R. D. O'Connor, St. Bartholomew's Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
529	D. F. Mackenzie, Univ. Edinburgh, M.B., B.Ch. (Univ. Edin.), D.T.M. (Liverpool).
528	J. E. M. Boyd, St. Mary's Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
517	G. Carlisle, Guy's Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
516	E. M. Middleton, St. Thomas's Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
510	O. R. M'Ewen, London Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Marks.	Names, Medical School and Qualifications.
508	J. H. Gurley, St. Bartholomew's Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
507	F. H. M. Chapman, St. George's Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
503	A. C. Elliott, Univ. Dublin, B.A., M.B., B.Ch. (Univ. Dubl.).
503	J. du P. Langrishe, Univ. Dublin, M.B., B.Ch. (Univ. Dubl.).
500	W. G. Aviss, Birmingham Univ., M.R.C.S. (Eng.), L.R.C.P. (Lond.).
497	W. B. Purdon, Queen's College, Belfast, M.B., Bac. Surg. (R. Univ. Ireland).
495	H. M. J. Perry, Queen's College, Cork, L.R.C.P. & S. (Ireland).
493	J. C. Hart, Queen's College, Cork, M.B., B.Ch. (R. Univ. Ireland).
493	M. O. Wilson, Queen's College, Belfast, M.B., B.Ch. (R. Univ. Ireland).
491	T. H. Scott, Univ. Edinburgh, M.B., B.Ch. (Univ. Edin.).
489	L. A. A. Andrews, Royal College of Surgeons, Ireland, L.R.C.P. & S. (Ireland).
484	G. F. Rudkin, London Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
482	V. T. Carruthers, Univ. Edinburgh, M.B., B.Ch. (Univ. Edin.).
481	H. W. Farebrother, Charing Cross Hospital, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
479	F. Casement, Univ. Dublin, B.A., M.B., B.Ch. (Univ. Dubl.).

SODIUM BICARBONATE AS AN ANTACID.

THERE is hardly a more popular or time-honoured remedy in existence than "bicarbonate of soda" for the relief of gastric pain. The description of "antacid" applied to this and similar drugs implies that the action depends on its power of neutralising excessive hydrochloric acid in the stomach. But Dr. Léon Meunier (*Bulletin des Sciences Pharmacologiques*) finds that its property of relieving gastric pain is not due to such neutralisation, but to the formation of carbonic acid gas, the sedative action of which on the stomach is well known. This being so, its results depend on the quantity of acid present in the stomach, which is of course

variable. In addition to this, the saturation of the acid by an alkali retards digestion by removing hydrochloric acid, and thus hindering the action of the pepsin, and the patient may be reduced to a condition of alkaline cachexia, which is, to say the least, undesirable. Dr. Meunier recommends that the CO_2 be formed independently by means of acid and alkaline powders. His formula is: Tartaric acid, 15 gr. (acid powder); sodium bicarbonate, 6 grains; calcium carbonate $4\frac{1}{2}$ gr.; hydrated magnesium carbonate 3 gr. (alkaline powder). Dissolve these separately, each in a glass of water, and take alternately a tablespoonful of each. Carbonic acid gas is thus gently given off in the stomach, and gastric pain is relieved without abstraction of hydrochloric acid.—*The Prescriber*, February, 1907, p. 73.

EARLY DIAGNOSIS OF MEASLES.

BRELET (*Arch. gen. de méd.*, Paris, 1906, p. 669) draws attention to two signs which, during the incubation period, are of value in forecasting the probable supervention of measles. The first of these is Meunier's sign, consisting in a marked loss of weight, which usually takes place towards the third, fourth, or fifth day in children incubating for measles, and about ten days before the eruption appears. This loss of weight averages about 60 grms. a day. As the author points out, a similar loss of weight may occur in children during the incubating period of other infectious diseases, so that it is not characteristic, but merely suggestive, of the onset of an infection. It is of special value in institutions where children have been exposed to the infection of measles, for by weighing them every day a marked loss of weight will indicate the cases likely to develop measles. The second sign is an increase in the number of leucocytes, especially the polynuclear forms. This leucocytosis begins with the incubation period, rapidly increases, and attains its maximum about the sixth day before the appearance of the rash, the leucocyte count being then about three times the normal. From this period diminution occurs, and by the time the rash appears there is usually a hypoleucocytosis present. Amongst other well-known signs, special mention is made of Koplik's spots. They appear three days before the eruption, and the writer asserts that they are present in from 80 to 100 per cent. of the cases. Their presence during the stage of invasion, before the appearance of the rash, makes the diagnosis of measles certain.—*The Edinburgh Medical Journal*, January, 1907.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

APRIL 1, 1907.

PART I.

ORIGINAL COMMUNICATIONS.

ART. IX.—*Our Debt to Ireland in the Study of the Circulation.*^a

By GEORGE A. GIBSON, M.D., Sc.D., LL.D.; Physician to the Royal Infirmary, Edinburgh.

It seems to me that the most appropriate recognition of your generous invitation will be to devote my remarks to a consideration of the invaluable contributions made by Ireland to the solution of problems connected with the circulation. The matter has, for many years, engaged my constant attention, and numerous references to the works of your distinguished countrymen have been made by me, both in speaking and writing.

This is not merely a labour of love, it is at the same time a bounden duty. It bears also in itself the prospect of practical usefulness, for it may be confidently affirmed that the researches and investigations of the great masters show, as his friend and biographer said of Graves,^b "how the past can be made to illuminate the works of the present time."

^a An Address delivered before the Medical Section of the Royal Academy of Medicine of Ireland, Friday, December 7, 1906.

^b "The Life and Labours of Graves," in "Studies in Physiology and Medicine." By the late Robert James Graves. Edited by William Stokes. London. 1863. P. ix.

Speaking to-night in this beautiful hall, surrounded by portraits of the illustrious men who have thrown the glamour of their achievements over this great school, and have added to the lustre of your ancient city, it is no great stretch of the imagination to think that our ears still throb with the echoes of their voices.

It is a most gratifying subject of reflection that in the early days of modern medicine Dublin and Edinburgh were so closely associated, and it is pleasant to know that at the present time there are connecting links between the two Universities. If any words of mine can further the good fellowship existing between these two seats of learning, any labours spent on this subject will be amply rewarded.

In reviewing the Irish contributions to the physiology and pathology of the circulation it is natural, in the first place, to mention the books which have appeared bearing upon these subjects. First amongst these come the *Clinical Lectures of Graves*^a—a work remarkable for its originality of conception, its breadth of view, and its felicity of diction. Trousseau, as is well known, urged those of his pupils who read English to regard it as their breviary.^b It would be foreign to my present purpose to deal with it from any point of view save in so far as it is devoted to circulatory affections, but, restricting our attention entirely to this latter subject, we have most valuable studies upon the condition of the heart in fever, on the clinical features of pericarditis, on pneumo-pericardium, upon cardiac symptoms and their significance, and, above all, upon that most interesting disease which in most countries still bears his name. To all these matters attention will be directed in the sequel.

One of the most philosophical parts of this great book is devoted to the facts of the blood supply of the lungs and the types of hæmoptysis resulting from cardiac and pulmonary lesions.^c It constitutes one of the most scientific expositions which have at any time appeared on this subject.

^a *A System of Clinical Medicine*. Dublin. 1843.

^b *Ibid.* New Sydenham Society's Edition. London. 1884. Vol. I., p. vii.

^c *Op. cit.* 1843 Edit. P. 259.

Two points may be referred to in connection with this work—One is the generous tone which pervades it, and which is seen most beautifully in the graceful dedication to Stokes—"Once his pupil, now his colleague, ever his friend." Another aspect is the delightful satire in which the author frequently indulges, and which, perhaps, is nowhere seen more clearly than in a footnote to one of the introductory lectures,^a which runs as follows:—"When this information was conveyed, as it formerly was at Sir P. Dun's Hospital, in Latin, the student had to encounter another barrier to the acquisition of knowledge. I have called the language *Latin*, in compliance with the generally received opinion concerning its nature." Lest it may be thought that in making reference to this matter there is any intention to say anything ungenerous to a sister school let me hasten to add that in the following pages^b Graves passes two or three well-merited strictures upon the methods employed in Edinburgh when he studied there.

Of the work of Stokes,^c it is indeed difficult to speak in measured language. Every page is instinct with the individuality of its great author, and carries the impress of original observation. Upon almost every aspect of circulatory disease it adds something to the knowledge of the time in which the author lived. The style of the work is as clear and sparkling as the waters of Avoca, and the descriptions are as full of light and shade as that famous lough, whose name is derived from its variable skies. This is not the language of hyperbole; it is the honest tribute of unbounded admiration.

With such a mass of original observations as are contained in this volume, it is extremely difficult to single out any one part for special mention, but it may be said that the section on pericarditis really laid the foundation of all subsequent work upon the subject; that Stokes added immensely to the current knowledge of valvular disease; that his conception

^a *Op. cit.* P. 4.

^b *Op. cit.* Pp. 5 and 6.

^c *The Diseases of the Heart and the Aorta.* Dublin. 1854.

of the condition of cardiac muscle was most remarkable for the age in which he lived ; and that on the subject of aneurysm he contributed many absolutely new facts.

Until the appearance of this work there was a somewhat inadequate conception of the possibilities inherent in the muscular walls of the heart. In this connection the following remark is worthy of quotation :—" It is, then, in the vital and anatomical conditions of the muscular fibre that we find the key of cardiac pathology ; for, no matter what the affection may be, its symptoms mainly depend on the strength or weakness, the irritability or paralysis, the anatomical health or disease of the cardiac muscles."^a

With reference to the relations of pathology and therapeutics, Stokes showed in many parts of his great work the workings of a philosophical mind. Let me quote a few lines from the chapter devoted to the treatment of the organic diseases of the heart.

" It is objected to the pathological science of the present day, that it has been too much occupied with the study of the nature and diagnosis of disease, and too little with its treatment ; and the works of the continental physicians are especially pointed out as being fruitful in facts of pathological anatomy, and barren in those of practical medicine. But more has been said on this subject than is, perhaps, just ; and we should be careful not to decry the labours of men who have done so much, because they have not effected everything. For medicine is a progressive science, and the pathological anatomist is truly the pioneer of the physician ; and the latter, if he desires to advance his science, must train his mind to a higher exercise and a more comprehensive thought than that required for the observation and recording of isolated facts in pathology. He must not only give due weight to the existence of separate phenomena and to the results of combinations of diseases, but he must study conditions which are beyond the reach of the pathological anatomist and learn to ignore the existence even of manifest organic alterations. While he bears in remembrance the ascertained

^a *Op. cit.* P. 131.

facts supplied by modern investigation, he is to go beyond them, having an eye to the general rather than the particular, and to found his diagnosis, prognosis, and treatment on that broad basis which includes not alone the effects, but the causes and special modifications of disease. Thus only can the new medicine be advantageously combined with the old. Thus only can that kind of skill which is, as it were, the instinct of the thinking man, be produced—the true *mens medica*—enabling us to act rapidly and successfully in opinion and practice, unconscious, too, of any effort of memory or complicated reasoning process. This is the great *desideratum* in medicine when we are called on to deal with varying combinations of local diseases and general morbid conditions. Accurate observation and accumulated experience are necessary for its attainment; and yet it is more accessible to some than to others. A few, indeed, seem incapable of acquiring it; and hence it is that, with a more limited experience, the mind of one man shows more brightly than that of another. In medicine we have to deal with ever-varying phenomena; the vital condition of organs cannot always be inferred from their physical state, nor the influences which act on the entire economy be explained by anatomy. Were it otherwise, medicine would be an easy pursuit, but no field for this exercise of mind, which is at once its difficulty and its glory.”*

As regards the treatment of disease, the author is always wise, but his views, in addition, were far in advance not only of his own age, but even of many distinguished men in our own period. This is notably the case as regards the use of exercise. Nothing, for instance, could be better than the following paragraph in regard to the treatment of incipient fatty disease:—

“We must train the patient gradually but steadily to the giving up of all luxurious habits. He must adopt early hours, and pursue a system of graduated muscular exercise; and it will often happen that after perseverance in this system the patient will be enabled to take an amount of exercise with pleasure and advantage, which at first was

* *Op. cit.* Pp. 342 and 343.

totally impossible, owing to the difficulty of breathing which followed exertion. This treatment by muscular exercise is obviously more proper in younger persons than in those advanced in life. The symptoms of debility of the heart are often removable by a regulated course of gymnastics or by pedestrian exercise, even in mountainous countries such as Switzerland, or the highlands of Scotland or Ireland. We may often observe in such persons the occurrence of what is commonly known as 'getting the second wind,' that is to say, during the first period of the day the patient suffers from dyspnœa and palpitation to an extreme degree, but by persevering, without over-exertion, or after a short rest, he can finish his day's work, and even ascend high mountains with facility."^a

When speaking thus of the work of Stokes it must be added that the remarks which have just been made do not make any attempt to exhaust the contributions of the author. In the second portion of this address an effort will be made, under the heads of particular affections, to mention the contributions which he made to each respective subject.

In taking leave of this historic volume let me state that the great author throughout his whole work manifests a magnanimity of mind quite as remarkable as the generosity of feeling exhibited by Graves. So deep, indeed, have been my obligations to this immortal work—which, it may be added, saw daylight in the year of my birth, and a copy of which has been my companion since my undergraduate days—that it may be regarded, if the phrase be permitted, as my cardiac bible.

The work of Bellingham,^b the first part of which appeared one year before and the second three years later than that of Stokes, was conceived in a comprehensive spirit and undertaken with singleness of purpose. It is a singularly complete work, characterised by perfect candour, and written in a spirited manner. It contains a considerable number of entirely original observations on the anatomy, physiology and

^a *Op. cit.* P. 357.

^b *A Treatise on Diseases of the Heart.* Dublin. 1857.

pathology of the heart, on the methods and results of physical examination, on modes of treatment and their effects, and more particularly on the subject of aneurysm, the modern treatment of which was really founded by the author. To many of these, which saw daylight previously in various journals, but more especially in that edited by his friend Jacob, it will be necessary to refer in the sequel. Meantime, let me remark that it is impossible to read Bellingham's work without feeling that he must have been a man of generous instincts, seeing that on almost every page he pays a tribute of graceful homage to his contemporaries, not merely in Dublin, but in other great medical schools.

The treatise of Hayden^a constitutes one of the most faithful, industrious, and painstaking contributions to the literature of cardiac disease, and for all time it will remain a store-house of facts as regards the state of knowledge at the conclusion of the third quarter of last century. Upon the subjects of physiology and pathology, the author furnishes very adequate summaries of the views then existing, and gives the results of certain original investigations carried out by himself. From the clinical point of view the work, however, is still more valuable, as it contains a vast mass of information, largely based upon personal observations, but culled also from the work of others who have laboured in the same field. In his presentation of the labours of other observers, and in his comparison of these results with his own, the author shows excellent judgment and perfect justice. A number of Hayden's contributions will be referred to in the second part of this address, and it need only now be added that he has laid his successors under heavy obligations by his indefatigable labours and honest endeavours.

Although we cannot claim it as directly emanating from Ireland, yet, as its eminent author belonged to a Hibernian family, we must regard the famous work of Walshe^b as really and truly due to your country. This work was at once

^a The Diseases of the Heart and of the Aorta. Dublin. 1875.

^b A Practical Treatise on the Diseases of the Lungs and Heart, including the Principles of Physical Diagnosis. London. 1851.

analytical in its tendencies and encyclopædic in its scope. Every subject which Walshe touched he adorned, and his book is at once valuable as an exposition of modern medicine and brilliant as an example of lucid writing. The work, at first devoted to the lungs as well as the heart, became separated into two volumes by a process analogous to one of the lowly forms of reproduction, and that concerned with the circulation reached a second edition in its independent condition, or the fourth edition from its real commencement,^a as did also the companion volume on the diseases of the lungs.^b

Inasmuch as it touches upon certain problems connected with the circulation, it is necessary to refer to one of the many brilliant works of Haughton.^c That distinguished and versatile man, amongst his multifarious interests—clerical, mathematical, chemical, educational, and administrative—produced his “Principles of Animal Mechanics” in 1873. In this most attractive and interesting volume there is a most felicitous section on the mechanical work done by the human heart,^d in which are to be found most careful calculations of the results of cardiac energy, and another admirable portion on the heart muscle.^e Although it is scarcely germane to the subject of this address, it is scarcely possible to pass by without remark the intense humour displayed by the gifted author in dealing with the forces exhibited by the uterine muscle. In this last-mentioned passage the researches of Matthews Duncan,^f and Tait are fully analysed.

The two little works of Jolliffe Tufnell^g on aneurysm must

^a A Practical Treatise on the Diseases of the Heart and Great Vessels, including the Principles of their Physical Diagnosis. Fourth Edition. London. 1873.

^b A Practical Treatise on the Diseases of the Lungs, including the Principles of Physical Diagnosis and Notes on Climate. Fourth Edition. London. 1871.

^c Principles of Animal Mechanics. London. 1873.

^d *Ibid.* P. 137.

^e *Ibid.* P. 430.

^f *Ibid.* P. 159.

^g “Practical Remarks on the Treatment of Aneurism by Compression, Dublin, 1851, and the Successful Treatment of Internal Aneurism by Consolidation of the Contents of the Sac, London, 1864.” Second Edition, 1875.

be mentioned here. In his first he deals chiefly with the treatment of external aneurysm by means of compression—a subject which had been inaugurated by Bellingham. In his second work, piously “dedicated to the memory of O’Brien Bellingham,” he fully explained the results of the treatment proposed also by Bellingham, but more systematically carried out by himself, by means of absolute rest and restricted diet. The word “little” has been employed in reference to these two works of Tufnell, but it applies only to the size, not to the value, of the volumes, and it is impossible not to agree with the author when he says^a that his observations “represent in a few pages what might have extended into ‘a book.’”

In addition to the works of these great masters of the last and the previous generation, you will permit me to refer to another volume of much more recent times: Lindsay’s admirable work,^b although mostly devoted to affections of the lungs, contains some very interesting chapters upon the circulation. The section on diagnostic problems in heart disease may be mentioned particularly as containing a most excellent statement of some of the difficulties attendant upon cardiac diagnosis. With the general results of Lindsay’s observations most of us will, doubtless, be in hearty accord; while he does not lay too much stress upon the presence of changes in the heart sounds, he also brings into prominence the necessity of estimating in so far as possible the condition of the heart muscle, but does not go so far as the modern French school in minimising the value of auscultation. When discussing the treatment of cardiac disease the author makes extremely wise remarks, not merely on the general management of such conditions, but on the treatment of special symptoms. Like most of us in this age he agrees with Allbutt and Little in recommending the use of morphine in cases of restlessness due to cardiac disease, and again, like the majority of thoughtful observers, he takes a cautious view of the Nauheim treatment.

^a The Successful Treatment of Internal Aneurism. P. 71.

^b Lectures, chiefly Clinical and Practical, on Diseases of the Lungs and the Heart. London. 1904.

Having thus, as briefly as possible, made these remarks upon well-known works, let me ask you to turn with me, in the second place, to an outline of the original observations contributed by the Irish schools of medicine to various branches of investigation connected with the circulation. It is quite impossible to make this sketch complete within the compass of a single address ; but, in so far as lies within my power, it will be my duty to bring forward the chief original contributions arranged in accordance with their different subjects. In attempting to do this it will be advisable, in the first place, to take up subjects bearing on the circulation in general before passing on to consider those which deal more especially with its particular aspects.

So far as is known to me, the first observer who had an adequate conception of the cause of the second sound of the heart, as we now understand it, was Carlile.^a As is generally recognised, the second sound was completely misunderstood by Laennec and his immediate followers, but it is perfectly obvious that Carlile had absolutely correct views upon this subject.

The Report of the Dublin Committee of the British Association,^b published in 1835, demands a passing reference as being representative of the most advanced views of the day. One point may be mentioned in connection with this subject. As is well known, Corrigan had somewhat heterodox views for a time in regard to the events of the cardiac cycle, but, as these were discarded by him at a later period, no further notice need be taken of them.

Paton^c communicated two papers upon the action of the heart, the chief characteristic of which was that he fell foul of Gairdner over the question of the presystolic murmur. Quain,^d in his later years, published a paper upon the move-

^a Dublin Journal of Medical Science. 1834. Vol. IV. P. 84.

^b Report of the Fifth Meeting of the British Association, held at Dublin in 1835. London. 1836. P. 243.

^c Dublin Journal of Medical Science, 1866, Vol. XLII., p. 35 ; and 1870. Vol. L., p. 93.

^d Proceedings Royal Society, London. 1897. Vol. LXI. P. 331.

ments and sounds of the heart which was eminently unorthodox, and which, as it caused but little attention, does not require us to linger. With regard to the work of the heart, an admirable methodical analysis of the work done by the heart was published by Haughton,^a whose earlier observations upon this subject have already been mentioned.

Corrigan's papers^b on "The Origin and Causes of the Sounds and Murmurs of the Heart and Blood-vessels" were absolutely original and profoundly effective. In this important contribution he not only showed that murmurs were produced in a body of moving fluid passing from a narrower into a wider lumen, but he traced out the whole methods of conduction of such murmurs. It is not too much to say that in this way he absolutely laid the foundations of our modern knowledge, and that, with a few slight exceptions, but little has since been added upon this subject. As an example of the clear views entertained by their gifted author, the following passage may be cited. Dealing with pressure on the femoral artery, he remarks :—

"In this experiment the artery beyond the point of pressure is no longer tensely distended; for the discharge or waste through the branches being greater than the supply through the narrowed portion, the supply is consequently not sufficient to keep the artery tensely filled; the artery thus becomes in some degree flaccid, and the moment it becomes so, is acted on by the impulses of the particles of the fluid in motion within. The motion of the fluid within we have now to consider. The stream of fluid issuing from the constricted or narrowed portion of the artery as it escapes into the wider portion beyond assumes the form of a current, the particles of which rush along with very different degrees of velocity. The particles in the centre being impelled with the greatest velocity, while those towards the sides are moving with varying and diminished velocities, whirling or currents are thus produced, which impinge upon the sides of the artery

^a Dublin Journal of Medical Science. 1870. Vol. XLIX. P. 74.

^b The Lancet; 1829; Vol. II.; pp. 1 and 33. Dublin Journal of Medical Science; 1836, Vol. X., p. 173; and 1839, Vol. XIV., p. 305.

and cause in them corresponding and extremely rapid vibrations : and when the finger is laid upon the artery thus circumstanced, the thrilling vibration of its parietes is perceptible with touch, and is the *bruissement* of Corvisart, the *frémissement* of Laennec, and upon the ear is made the impression to which we give the name of *bruit de soufflet*."

Corrigan applies this explanation to disease of the mitral and aortic orifices ; to the gravid uterus ; to varicose aneurysm ; to aneurysm by anastomosis ; to sacculated aneurysm ; to vessels after hæmorrhage ; and to cases of nervous interference with the vessels.

Nagle wrote on the motions and sounds of the heart,^a showing the difficulties attendant on the application of new methods, and afterwards made an attack^b upon Corrigan's views as regards the causation of murmurs, in which he referred to a previous paper of his own which appeared in the *Lancet* two years after Corrigan's ;^c the result of this, as of other attacks, however, has simply been to seat the contribution of Corrigan more firmly in the admiration of all scientific men. It is pleasant to notice that many subsequent contributions upon similar subjects have emanated from the Dublin Medical School. Amongst these must be mentioned the paper of O'Carroll^d on the second sound, of Nixon on functional aortic regurgitation,^e on functional pulmonary murmur,^f on functional mitral murmur,^g and on organic mitral murmur,^h and of Travers Smithⁱ upon functional cardiac murmurs : the last-mentioned of which was communicated to this Section of the Royal Academy of Medicine at its most recent meeting. Comparatively early O'Ferrall^j carefully studied the vanishing of murmurs in late stages of mitral disease.

^a Dublin Journal of Medical Science. 1833. Vol. III. P. 22.

^b *Ibid.* 1837. Vol. XII. P. 1.

^c *Lancet.* 1831. Vol. II. P. 261.

^d Dublin Journal of Medical Science. 1900. Vol. CX. P. 187.

^e *Ibid.* 1877. Vol. LXIV. P. 187.

^f *Ibid.* 1881. Vol. LXXII. P. 191.

^g *Ibid.* 1873. Vol. LV. P. 562.

^h *Ibid.* 1886. Vol. LXXXI. P. 473.

ⁱ *Ibid.* 1907. Vol. CXXIII. P. 48.

^j *Ibid.* 1843. Vol. XXIII. P. 418.

The relation of the pulse to posture was the subject of very careful investigation at an early date by M'Donnell^a and Graves,^b the observations of the last-mentioned author being most perspicuous and complete. Another paper on the same subject by Travers Blackley^c deserves mention.

Infrequency of the pulse in cases of myocardial degeneration was described by Adams^d and afterwards by Stokes,^e while more recently Hayden^f reviewed the whole matter. How the modern conception of this affection has grown out of these early Irish observations will be told in the sequel.

Two excellent series of papers on the general pathology of the heart were published by M'Donnell^g and by Lyons^h; these papers are of real value. The interesting contribution of Little,ⁱ on the mechanism of cardiac dropsy, is worthy of close study. In this contribution the author recalls the fact that, while valvular disease and ventricular dilatation are recognised causes of dropsy, yet it is known that patients may have both conditions and yet not become anasarcaous; he shows that there must, in addition, be some factor, and he emphasises the hydræmia and the changes in the blood-vessels as probably powerful agents. When it is remembered that this paper was published before the appearance of Cohnheim's work on general pathology it will be recognised how far-seeing its author is.

Amongst the contributions bearing upon the heart itself there were, in the early days of last century, some excellent contributions upon symptoms. Dealing with palpitation

^a Verbal Communication to Thomson, referred to by Blackley; *vide infra*.

^b Dublin Hospital Reports. 1830. Vol. V. P. 561.

^c Dublin Journal of Medical Science. 1834. Vol. V. P. 332.

^d Dublin Hospital Reports. 1827. Vol. IV. P. 353.

^e Dublin Journal of Medical Science, 1846, Vol. XI., p. 73; and Diseases of the Heart and of the Aorta, 1854, p. 332.

^f Dublin Journal of Medical Science. 1865. Vol. XI. P. 456.

^g Dublin Quarterly Journal of Medical Science. 1852, Vol. XIV., p. 352; 1853, Vol. XVI., p. 76; and 1854, Vol. XVII., p. 90.

^h *Ibid.* 1862. Vol. XXXII. P. 320.

ⁱ Dublin Journal of Medical Science. 1873. Vol. LV. P. 305.

Percival,^a in 1817, pointed out that tea was a fertile source of the troublesome symptom, but he also showed that in some cases the condition might be relieved by the use of tea. Corrigan^b gave, in 1841, a careful analysis of various forms of palpitation and other nervous derangements, while Bellingham^c added some facts, previously but little recognised, as regards its dependence on certain structural changes. Connected with this subject may be noticed the interesting paper by Faussett,^d in which he emphasised the presence of throbbing of the aorta in the epigastrium—a very excellent contribution upon the subject. Also allied to this subject is the valuable paper of Magee Finny on tachycardia,^e and the more recent contribution of Travers Smith^f on tachycardia and epilepsy. An admirable investigation of bradycardia, to be afterwards spoken of, was published recently by Magee Finny.^g Of papers on angina pectoris there have been comparatively few. The earliest appears to be one by Cuming^h in 1822, giving a graphic account of its symptoms, but, as might be expected of that period, without any very complete examination of the heart. Ten years later Newtonⁱ contributed an interesting article upon the subject, and, in 1837, Corrigan^j published a paper characterised by all his clinical acumen. It is interesting to notice that he regarded aortitis as a potent cause of the affection. This, as we all know, has recently been emphasised by Clifford Allbutt^k as one of the most important factors in the production of angina pectoris. An acute paper on the association of angina pectoris with organic disease of the heart was published by Bellingham;^l a careful study of angina pectoris in infectious

^a Dublin Hospital Reports. 1817. Vol. I. P. 219.

^b Dublin Journal of Medical Science. 1841. Vol. XIX. P. 1.

^c Dublin Medical Press. 1857. Vol. XXXVII. P. 145.

^d Dublin Journal of Medical Science. 1837. Vol. XI. P. 439.

^e Dublin Journal of Medical Science. 1899. Vol. CVIII. P. 1.

^f Medical Press and Circular. 1902. Vol. II. P. 597.

^g Dublin Journal of Medical Science. 1906. Vol. CXXI. P. 321.

^h Dublin Hospital Reports. 1822. Vol. III. P. 319.

ⁱ Dublin Journal of Medical Science. 1832. Vol. I. P. 156.

^j *Ibid.* 1837. Vol. XII. P. 243.

^k The Cavendish Lecture. London. 1903. P. 17.

^l Dublin Medical Press. 1853. Vol. XXIX. P. 81.

diseases was made by John W. Moore^a, and an interesting historical account of the symptom was contributed by Knott.^b

The cerebral symptoms of cardiac disease were analysed with much perspicuity by Law^c in 1840. Not only did this author give a full account of the important cerebral manifestations produced by disturbances of the circulation, but he laid down most excellent regulations for their treatment. He was followed by Hudson,^d who entered upon a detailed examination of the delirium of heart disease in a valuable contribution.

Alterations in the position of the heart, which had been studied by Stokes^e and Croly,^f occupied the conscientious assiduity of Hayden^g for some time, and his work on the heart contains an elaborate and valuable contribution on displacements of the heart. This part of his work is not merely of importance on account of its clinical investigations, but it is of even greater value on account of the experimental work by which it was accompanied and upon which a number of the author's conclusions were based.

Congenital affections of the heart do not occupy so much attention as might have been expected. There are, nevertheless, some important contributions upon this subject. Congenital smallness of the heart as a whole was elaborately studied by Bellingham.^h Mayneⁱ described, in 1841, an instance of imperfect interauricular septum, with patent ductus arteriosus, mitral constriction, tricuspid dilatation, and atrophic left ventricle, and an enormous dilatation of the right ventricle. Houston^j described an acardiac fœtus,

^a Dublin Journal of Medical Science. 1893. Vol. LXXXIX. P. 129.

^b *Ibid.* 1897. Vol. CIII., pp. 368 and 465; and Vol. CIV., pp. 32 and 203.

^c Dublin Journal of Medical Science. 1840. Vol. XVII. P. 181.

^d *Ibid.* 1842. Vol. XX. P. 272.

^e Edinburgh Medical and Surgical Journal. 1831. Vol. XXXVI. P. 45.

^f Dublin Medical Press. 1840. Vol. IV. P. 21.

^g Diseases of the Heart and of the Aorta. 1875. P. 102.

^h Dublin Medical Press. 1857. Vol. XXXVII. P. 144.

ⁱ Dublin Quarterly Journal of Medical Science. 1848. Vol. V. P. 46.

^j Dublin Journal of Medical Science. 1836, Vol. X., p. 204; and 1843, Vol. XXIV., p. 337.

the chief point of his papers being that he combats the views of Marshall Hall. The increase of cyanosis on exertion did not escape the acumen of Corrigan.^a Questions connected with patency of the foramen ovale and cyanosis were discussed by Foster,^b while mitral malformations occupied the attention of Banks^c and Mayne,^d and deformities of the pulmonary valves, characterised by the existence of two cusps only, were described by Graves^e and Foot.^f An extremely rare cardiac malformation was fully investigated by Birmingham and O'Carroll.^g

Amongst symptoms connected with the circulatory system periodic breathing must be mentioned. Described by Cheyne,^h and later by Stokes,ⁱ who both regarded the symptom as connected with fatty heart, it was shown by Seaton Reid^j to occur in cases showing no trace of fatty changes in the myocardium. This symptom was fully discussed by Head,^k and it was the subject of a most interesting paper by Little,^l in which he promulgated a very ingenious theory in which the cause was sought in a want of correspondence between the actions of the two sides of the heart. This theory was accepted, with modifications by Benson.^m All these observations have been thoroughly analysed by meⁿ in a former work.

Law^o was one of the early observers who discussed questions of metastasis of rheumatism from the joints to the heart in

^a Dublin Pathological Society. 1858.

^b Dublin Journal of Medical Science. 1863. Vol. XXXVI. P. 112.

^c *Ibid.* 1854. Vol. XVII. P. 226.

^d Dublin Journal of Medical Science. 1870. Vol. XLIX. P. 496.

^e *Ibid.* 1842. Vol. XXI. P. 385.

^f *Ibid.* 1888. Vol. LXXXVI. P. 100.

^g *Ibid.* 1892. Vol. XCIII. P. 417.

^h Dublin Hospital Reports. 1818. Vol. II. P. 216.

ⁱ The Diseases of the Heart and of the Aorta. 1854. P. 324.

^j Dublin Hospital Gazette. 1859. Vol. VI. P. 308.

^k Dublin Quarterly Journal of Medical Science. 1867. Vol. XLIV. P. 405.

^l *Ibid.* 1868. Vol. XLVI. P. 46.

^m *Ibid.* 1869. Vol. XLVIII. P. 127.

ⁿ Cheyne-Stokes Respiration. Edinburgh. 1892. P. 4, *et seq.*

^o Dublin Journal of Medical Science. 1832. Vol. II. P. 1.

the days when the facts were arousing interest for the first time.

Pulsating empyema attracted the attention of M'Donnell ^a and also of Stokes, ^b while pulsating pneumonia was thoroughly investigated by Graves. ^c

Upon affections of the pericardium the literature emanating from the Irish schools was, in early days, exceedingly rich. Although, as is well known, the sound of friction was heard, yet misunderstood, by Laennec, ^d and for the first time definitely explained by Collin, ^e it attracted but little notice until the observations of Stokes, Corrigan, and Graves. The first of these three observers was the earliest to give, ^f as the result of an exhaustive examination, full details of the auscultation, and to point out the value of friction as a means of diagnosis. His original paper is one of the most important contributions ever published on the subject of pericarditis. Somewhat later the author discovered and described the occurrence of friction which could be felt when the hand was applied to the præcordia, ^g and he also made it quite clear, in another paper, ^h that fluctuation was sometimes present in pericardial effusion. Corrigan ⁱ gave an excellent account of auscultation in pericarditis. The pulse changes produced by pericardial inflammation were carefully studied and fully described by Graves. ^j To Graves is due the first clear conception of pneumo-pericarditis, ^k and the quite unique case of this affection produced by abscess of the liver still remains

^a Dublin Journal of Medical Science. 1844. Vol. XXV. P. 1.

^b Diseases of the Heart and of the Aorta. 1854. P. 607.

^c Dublin Journal of Medical Science. 1835. Vol. VI. P. 51.

^d De l'auscultation médiate. Paris. 1819. Tome II. P. 368.

^e Des diverses méthodes d'exploration de la poitrine. Paris. 1824. Pp. 60 and 64.

^f Dublin Journal of Medical Science. 1833. Vol. II. P. 63.

^g *Ibid.* 1833. Vol. IV. P. 28.

^h *Ibid.* 1833. Vol. IV. P. 28.

ⁱ *Ibid.* 1836. Vol. IX. P. 392.

^j *Ibid.* 1842. Vol. XX., p. 385; and Vol. XXI., p. 181.

^k *Ibid.*, 1839, Vol. XIV., p. 349; and a System of Clinical Medicine, Dublin, 1843, p. 821.

a model of concise description. Mayne^a made some observations of high value upon pericarditis in general, and more particularly directed attention to the symptom of pain in the epigastrium, which had been previously described by Abercromby.^b Smith^c described adherent pericardium with calcification and cardiac atrophy, and a careful study of obliteration of the sac was made more recently by Archer.^d Hudson^e called attention to the possibility of error in diagnosis due to the presence of friction from mediastinal emphysema, and Corrigan showed that on change of posture there was an alteration in the localisation of the friction in pericarditis. Another most philosophic observation was made by Corrigan,^f when he showed that the exudation in pericarditis was largely caused by the movements, and recommended opium as a sedative. In some degree he was thus the forerunner of Hilton.^g Tuberculous pericarditis received thorough analysis at the hands of Kennedy,^h who terms it strumous pericarditis, and since the date of his paper it has always been recognised as one of the forms of pericardial disease. In connection with this subject the name of Bellinghamⁱ must not be overlooked, as he added considerably to the interest aroused in pericardial conditions. Paracentesis of the pericardium was fully discussed about thirty years ago by Nixon.^j

Of contributions on endocarditis, Mayne's paper^k on intra-uterine endocarditis affecting the left side of the heart was a distinct advance. Many papers have since

^a Dublin Journal of Medical Science. 1835. Vol. VII. P. 255.

^b Edinburgh Medical and Chirurgical Transactions. 1824. P. 1.

^c Dublin Journal of Medical Science. 1836. Vol. VIII. P. 411.

^d *Ibid.* 1876. Vol. LXII. P. 286.

^e *Ibid.* 1849. Vol. VIII. P. 241.

^f *Ibid.* 1840. First Series. Vol. XVI. P. 256.

^g Rest and Pain. Sixth Edition. London. 1896. P. 262.

^h Dublin Medical Press. 1853. Vol. XXIX. P. 33.

ⁱ *Ibid.*, 1853, Vol. XXX., pp. 241, 321, 337 and 353; and 1854, Vol. XXXI., pp. 1, 17 and 65.

^j Dublin Journal of Medical Science. 1876. Vol. LXI. P. 525.

^k Dublin Hospital Gazette. 1855. Vol. II. P. 179.

appeared in the Irish annals upon endocardial inflammation, amongst which may particularly be mentioned the important articles of Purser,^a Little,^b O'Carroll,^c Smith,^d Nixon,^e Burgess,^f and McWeeney.^g In these valuable contributions the various forms of endocarditis are fully described, and their relations amply discussed. In the more recent of these papers the bacteriology of the condition, as might be expected, is a very important feature.

Rupture of the cusps was carefully studied by Quain,^h who, though not a member of any Irish School of Medicine—geographically speaking—was, like Walshe, of Irish descent. A cribriform condition of the cardiac valves was discussed by Bellingham,ⁱ and a melancholy interest attaches to this paper, for it was the last which he published, just six months before his death.

The invaluable contributions of Corrigan to the subject of cardiac murmurs have already been fully mentioned. They were followed by several other important contributions. Leared^j devoted his attention to the whole subject, and, about the middle of last century, produced the result of his important investigations. Cuming^k gave a masterly analysis of functional cardiac murmurs, and shortly afterwards published some further remarks, especially on the propagation of

^a Dublin Journal of Medical Science. 1886. Vol. LXXXI. P. 76.

^b Transactions Royal Academy of Medicine, Ireland. 1888. Vol. VI. P. 360.

^c Dublin Journal of Medical Science. 1891. Vol. XCII. P. 198.

^d Transactions Royal Academy of Medicine, Ireland, 1886. Vol. IV. P. 349.

^e *Ibid.* 1896. Vol. IV. P. 351.

^f Dublin Journal of Medical Science. 1894. Vol. XCVII. P. 308.

^g Transactions Royal Academy of Medicine, Ireland. 1899. Vol. XVII. P. 503.

^h Monthly Journal of Medical Science, Lond. and Edin. 1846. Vol. VII., P. 405.

ⁱ Dublin Medical Press. 1857. Vol. XXXVII. P. 321.

^j Dublin Quarterly Journal of Medical Science. 1852. Vol. XIII. P. 338.

^k Dublin Journal of Medical Science. 1868, Vol. XLV., p. 314; and 1869, Vol. XLVIII., p. 590.

murmurs. Nixon^a dealt fully with dynamic murmurs, and Hayden,^b in his comprehensive volume, gave a full, fair, frank discussion of the whole subject, being especially valuable upon the presystolic mitral murmur. On the vanishing of murmurs O'Ferrall's^c paper deserves notice. A curiosity in the way of type was the trumpet sound described by Corrigan.^d

(To be continued.)

ART. X.—*Current Theories of Aphasia.*^e By FRANK C. PURSER, M.D., F.R.C.P.I.; Assistant Physician, Richmond, Whitworth, and Hardwicke Hospitals.

I HAVE chosen the "Current Theories of Aphasia" as the subject-matter for my inaugural address because it seems to me that this subject must be of interest to every branch of the medical profession, alike to the practising doctor and to those who devote their attention to the foundations of clinical knowledge.

When we consider the striking nature of its symptoms and the enormous literature on the subject now existing it seems remarkable how little aphasia is mentioned in general literature and how long the medical profession took to recognise its nature. The existence of the condition did not escape Hippocrates, who distinguished between loss of power of speech (aphasia) and loss of voice. It was known, too, to other early writers, by some of whom it was looked on, as one might expect, as bewitchment or possession of a devil.

Towards the end of the eighteenth and the beginning of the last century aphasia began to excite a good deal of interest. Cases may be found described in more or less detail, with accounts of autopsies, which show that the

^a *Ibid.* 1873. Vol. LV. P. 562.

^b *The Diseases of the Heart and of the Aorta.* 1875. P. 171.

^c *Dublin Journal of Medical Science.* 1843. Vol. XXIII. P. 418.

^d *Ibid.* 1864. Vol. XXXVIII. P. 197.

^e Presidential Address to the Dublin University Biological Association at the opening meeting, November 15th, 1906.

profession realised it was probably due to a demonstrable brain lesion. But the brain at this time was looked upon as a dish of macaroni, all parts alike in texture and function, and so it is not surprising that there was no localisation of a portion special to the function of speech; and that it was not generally admitted that the brain was at fault at all seems evident from the clinical lectures of Graves, who, as late as 1851, described two typical cases of aphasia under the heading "Neuroses of the Larynx."

Among the earlier attempts to solve this still vexed problem may be mentioned those of Bouillaud, who in 1825 mapped out the frontal lobes as the seat of the memory and formation of words. This was the result of an analysis of upwards of a hundred cases in which speech was defective and these lobes diseased. Bouillaud was followed by others who supported his views in the main, though some placed the site of the lesion further back. Among somewhat later observers was Dax, who made a great advance in locating the lesion exclusively in the left half of the brain. The observation that when it accompanied the aphasia hemiplegia was always right-sided led him to this conclusion. The accuracy of this observation is unquestioned. That right-handed persons have their speech-centres in the left half of their brain, as left-handed persons have theirs in the right half of the brain, is an universally recognised fact.

Broca, in 1861, localised the seat of the lesion still more accurately, and in doing so gave the stimulus which has led to all the brilliant researches on the topography of the brain since his time.

His original opinion was that the site of the lesion in aphasia was the posterior part of the third left frontal convolution. This view he modified later, extending the area to the Island of Reil and to the extra-ventricular nucleus of the corpus striatum of the same side.

To deal fully in this Address with a question so difficult as aphasia is obviously out of my power. I wish rather to describe the more generally accepted theories, and to show

the nature of the evidence on which these views are founded. It will then be only just to describe, if briefly, the two cases which led Broca to his famous opinion, an opinion which has not yet been proved fallacious—namely, that “The integrity of the third left frontal convolution appears indispensable to the faculty of articulate language.”

The first case was that of a man, aged fifty, who had been epileptic since childhood. When thirty he lost his power of speech—the monosyllable “tan” and one oath comprising his vocabulary. Whether the loss of speech was sudden or gradual is unknown. His intelligence is described as perfect. Ten years later a gradual right-sided paralysis supervened. He died of erysipelas ten years after the onset of the paralysis. The *post-mortem* examination showed softening of a greater part of the frontal lobe—a cavity full of serum and as big as an egg resulting. The softening included the first temporal convolution, the Island of Reil, the inferior part of the ascending frontal convolution, and the posterior parts of the second and third frontal convolutions. In the last-mentioned site, in the posterior part of the third convolution, the defect was most pronounced. Broca’s interpretation of the case is that the primary lesion was situate in the third frontal convolution, causing loss of speech, the gradual spreading of the lesion to the extra-ventricular nucleus of the corpus striatum and Island of Reil causing the gradual hemiplegia.

The second case was that of a man, aged eighty-four, who, after a sudden attack of unconsciousness, diagnosticated as apoplexy, suffered from the loss of power of speech, but from no other paralysis. His memory was good, and his intelligence is described as perfect. His vocabulary consisted of only four words:—*oui, non, trois, toujours*—articulated with difficulty. The first two expressed affirmative and negative, and were appositely used. The third expressed number, and was always supplemented by a show of fingers thus eight would be called *trois*, but

eight fingers would be shown. To any question to which these three words did not suit in answer he replied *toujours*. There was no paralysis in any muscle used in speaking. The *post-mortem* in this case showed the remains of a hæmorrhage occupying the posterior portion of the second and third frontal convolutions, all the remainder being considered healthy. From this *post-mortem* evidence, with absence of paralysis, with retention of intelligence and loss of power of speech as sole symptom, Broca felt justified in his definition of a centre presiding over the faculty of articulate language.

Professor Trousseau's cases showed a small majority against Broca's theory. Professor Charcot's cases, however, more or less supported it. One of Charcot's cases, which had been very completely aphasic, showed no lesion at all of the third frontal convolution, but of the corpus striatum and Island of Reil. Broca mentions this case as one in opposition to his hypothesis.

The medical profession seem to have been honestly doubtful of the genuineness of Broca's theory, but he—convinced of its correctness—prosecuted his researches untiringly. On one occasion there was an autopsy on a case of aphasia, in which Trousseau, amongst others, pronounced Broca's area healthy, although much of the left hemisphere was softened and destroyed. Enter Broca, who said his area was yellow and softened, and that it had been considered healthy, as the learned gentlemen had not known where to look for it!

Although little or nothing was known at this time of what we call "motor-centres" in the cerebral cortex, from the description of the cases and the views held on them, it is, I think, evident that aphasia was looked upon as a purely motor disease: that is, part of the brain was destroyed which sent motor impulses to the muscles of the tongue, larynx, &c., causing them to contract orderly and so produce articulate language. But the importance of sensory centres as well as of motor centres in speech production becomes very evident when we consider the rela-

tions existing between thought and language, and the manner in which a child acquires these two properties.

After the first few months of his existence a child begins to take notice of his surroundings. He begins to look about him, to listen to sounds, and to take hold of things. The stimuli of external objects to his sensory end organs are carried up through their proper channels each to a portion of cerebral cortex more or less its own. If the external stimulus is to make any impression on the child, changes must take place in the cells of his cortex, and a further subtle change must occur in these cells in the storing up of the original sense impression. This stored impression is a memory. This change in the cell is of such a kind (presumably) that on the application of an appropriate stimulus it may re-change into its condition when appreciating the stimulus originally. Without a storing of sense impressions no external stimuli can be of any permanent value to the child.

Now some object, say a ball, is given to the child to play with. He sees its spherical shape and bright colour; he feels it is smooth and elastic. These attributes of the ball are stored in his brain as sensory memories—perceptions—and the sum of his few perceptions is the child's rudimentary idea or conception of the ball. But when the ball is given to him he hears it called by its name—the word “ball”—and the sound of the spoken word travels to his cortex by the auditory channels at the same time as the other sense impressions, and is stored there. Thus the name of the object becomes as it were an attribute of the object. When the word “ball” is mentioned the child will look towards where he has learned the ball is kept, showing that stimulation of one perceptive centre has stirred up in the other perceptive centres their latent stored perceptions. As he grows older he learns himself to say the word “ball,” imperfectly, of course, at first. He will apply the name to an orange or any other object like a ball, displaying the limited range of his conceptions certainly, but showing conclusively the

connection in his brain between the perceptions derived from his various senses. He learns, too, the fundamental ideas of rest, of motion towards and motion from, of size and of time, and he learns the sounds of the words used to designate these. And other more complicated impressions of the ball are registered in his brain. There is the memory of his joy at seeing it thrown in the air and hearing it hopping on the floor. These emotional memories add to his store of perceptions, and the child's conception of the ball becomes wider. As he learns to articulate more words he applies names to his emotional states. All pleasing ones he speaks of as good or nice, all unpleasant ones as dirty or naughty, but as he acquires wider conceptions he applies his adjectives more correctly; and later still he speaks of his complication of perceptions—his emotions and conceptions by name, and thinks of them by name, and not in the elementary components into which they may be analysed.

This account of a child's intellectual development, though very imperfect, will suffice to show the interdependence of thought and language and the necessity of sensory centres for their acquirement. We see how inseparable our thoughts are from language; we see our thoughts depend on the range of our perceptions which depend on our sensory organs and their respective cortical centres. The extra importance of the auditory sensory tracts in the acquirement of spoken language is so obvious as to need no special advertisement.

Speech is a motor act. Its use is to reproduce our thoughts. Our thoughts, of whatever intellectual value, depend on stimulation of sensory centres. Speech may then be looked on as an elaborate reflex act—as a motor response to a sensory stimulus. I do not say speech is a reflex act, nor do I suggest it is a reflex like a spinal-reflex, a simple thing comparatively—it is rather a dual reflex, elaborate and complicated, and capable of an infinite variety of stimulation. A reference to this diagram will better explain my meaning. Here are two

stations (S. and M.), collections of nerve-cells and nerve processes. S. is made up of several more or less separate parts, in each of which is stored a sensory perception. Stimulation of one division is not, however, confined to that division, but stirs up the latent perceptions (memories) in all the other divisions, and a thought results. Thoughts are, according to this view, the result of a manifold interaction of the sensory centres, but this is by no means a generally-accepted theory, as will be seen later. The centre S. acts on the centre M. and the first part of the reflex is complete. The centre M. is a centre of lower social standing in the nervous system scale. It is at present to be looked on as a centre wherein are

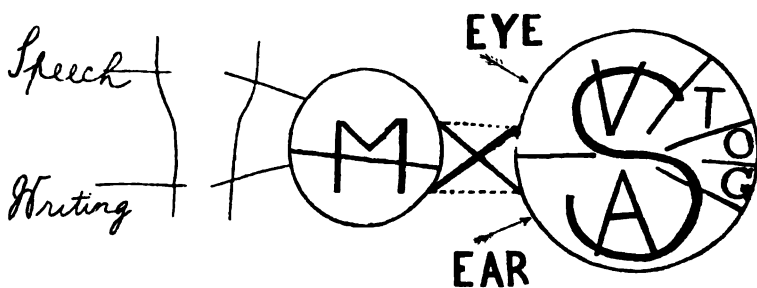


Fig. 1.

stored the sensory impressions emanating from the various tissues involved in the motor act of articulating words. It is a sensori-motor area. It is stimulated, as I have said, from S. It cannot work independently of S. When stimulated it sets the various muscles engaged in articulation in motion by way of their bulbar and spinal nuclei.

The process might be compared to building a bridge. S. will represent the plan of the engineer acquired from various observations. M. is the contractor acting only on orders from S. M. supplies the materials of which the bridge is built—in this case sensori-motor word-memories—and he entrusts them to the foremen, the nuclei in the medulla, whose work he organises that they may work

harmoniously together. The navvies will be represented by the muscles of the tongue and larynx, and they are stimulated to work industriously by the foremen.

So much for the nervous machinery. Let us now consider how it is set in motion.

As M. acts only on stimulation from S. the nature of the stimulus on M. will depend on the state of affairs (that is, the ideas aroused) in S. The ideas in S. may be broadly divided into two classes—(1) Those which are principally emotional, and (2) those which are more purely intellectual. The emotional stimulus is far more powerful than the intellectual. States of anger or fear are expressed in far louder and more forcible language than unemotional intellectual ideas. They may, indeed, find expression where unemotional intellectual ideas cannot. A classical example of this is recorded by Herodotus. The son of Cræsus, who up to that time had never spoken a word, seeing his father in danger of being killed at the siege of Sardis, called out to the Persian to spare Cræsus. Modern and better authenticated cases of an exactly similar nature are recorded. No doubt Cræsus' son had acquired a knowledge of the meaning of words, and developed the nervous apparatus necessary for their production, but owing to some inactivity of the brain had never used his powers. Under the influence of emotion caused by his father's peril the greater momentum of emotional stimulation found outward expression in his first words.

But what of the stimuli affecting S.? What puts an idea into our heads, and how do we recall the words to express it?

The stimuli which give rise to an idea and recall a word are, as we have seen, the same. They are divided by Bastian into three orders, according to their momentum. The stimulus which leads to "volitional recall" of a word is the stimulus of lowest momentum. It is a sub-conscious stimulus, that is, one which is unable to force itself on attention, but is sufficient to effect those changes in the cortical cells of the brain which we have supposed to

occur when a latent perception becomes an active perception. This sub-conscious stimulus may explain why people of the same way of thinking after a period of silence will simultaneously give vent to a similar idea, a circumstance which occurs so frequently in some families as to justify one's trying to explain it otherwise than as mere coincidence.

The second order of stimulus is called "association recall." In these cases the stimulus does force itself on attention, but on the attention of an area associated with the auditory area. A word we cannot recall voluntarily we can read and then repeat.

Cases occur where volitional recall and association recall are impossible, but repetition of the word is possible on hearing it spoken. This "direct sensory stimulus" is the stimulus of highest momentum.

In old age and in diseased conditions the activity of the brain may be so depreciated that no stimuli will give rise to an idea or recall a word. Again, it may be so slight that only volitional recall, and that only for certain classes of words, is impossible. No less interesting is the condition when the brain is morbidly active, as in mania, and to a less extent in drunkenness, where any stimulus will produce a host of ideas of sorts poured forth in volleys of words. In mania we may hear apparently quite irrelevant ideas started by a word differing wholly in significance from, but agreeing somewhat in assonance with the idea expressed, as when a maniac is led off from some remark on farming to talk of pharmacy, and then of farthings, and so to still farther things irrelevant to the original proposition!

Later on the child—now well able to speak—learns to read. The conventional hieroglyphics forming words are impressed on his visual centres, probably always exciting the auditory centre before arousing in the mind the idea they are intended to convey. Still later, when reading has become more or less easy, the child learns to make the hieroglyphics for himself. He recalls in his

auditory centre the word he wishes to write. This stirs up the memories in his visual centre, and, this acting on the portion of cortex presiding over the movements of the hand and arm, lets loose the motor response in the act of writing.

An appreciation of the importance of sensory centres in speech production was first shown by Dr. Bastian in 1869, and they are largely his views which I have given you in the foregoing account of its physiology.

The rôle of the sensory centres in the production of speech was subsequently strenuously insisted on by Wernicke and by Kussmaul. From the prominence they gave to lesions of a receptive or sensory nature, and from the exactness with which the centres connected therewith were defined and sub-divided by them, speech defects of a sensory nature—or *sensory aphasia* as Wernicke called them, in contrast to Broca's aphasia or *motor aphasia*—are associated with the names of Kussmaul and of Wernicke, especially with that of Wernicke.

Wernicke recognised the necessity for an auditory centre for words as a link in the chain of speech production. He was led to suspect such a centre would be found in the first temporal convolution, relying on a description of the course of the fibres of the auditory nerve after entering the brain given by Meynert. Two autopsies on persons who, though not deaf, had suffered from the inability to understand spoken language, showed disease of the posterior part of the first temporal convolution and of the parietal lobe. Thus Wernicke's auditory word centre obtained at once a definite site in the brain and an universally recognised position in medical literature.

A similar centre for the perception of printed or written language was located by Kussmaul in the supra-marginal convolution and the angular gyrus. It was a part of a general visual centre extending to the occipital lobes. A destruction of the auditory word centre resulted in the patients recognising words as sounds which conveyed no meaning. This condition was named by Kuss-

maul "word deafness." A lesion in the visual word centre led to an analogous condition—"word-blindness."

In cases of sensory aphasia the patients are not speechless. They can often talk a great deal, but they do so more or less unintelligibly. Their sentences are often incomprehensible, and the words they employ meaningless. This varies in degree from misplacing a few words, or substituting here and there of unmeaning words—a condition known as *paraphasia*—to an incoherent jumble of sounds—a condition known as "*jargon*" or "*gibberish-aphasia*."

Wernicke's doctrine being accepted as well as Broca's, the two were combined, and authors expounded the question of aphasia in various ways, all of which present a superficial similarity to each other. Most of the explanations are helped out by diagrams, of which it will be necessary to show you only two types as illustrating present views and the contentious points in these.

The first of these diagrams is copied from one made by Charcot. We consider now the case of a child learning to talk. The object it is learning to name and to understand the nature and uses of is a bell.

The sound of the bell being rung and of the word "bell" when spoken are conveyed by the auditory tracts to a general auditory perceptive centre (CAC), the latter to that specialised part thereof called the auditory centre for words (ACW). From the general centre and the word centre, according to this view, impulses are conveyed to a higher centre, a centre not for percepts, but for concepts. This is called an ideational centre (IC). Here all percepts are associated, and moulded, as it were, into concepts. To say the word "bell" an impulse passes from the ideational centre to the centre for articulate language (CAL), whence pass impulses by the motor paths to the muscles moving the tongue, lips, larynx, and thorax. In merely repeating the word after hearing it uttered the path would be ACW-CAL direct.

Similarly the visual centres are called into play, the

general visual centre (CVC) to store impressions of the shape and colour of the bell, the visual word centre (VCW) to store the impression of the word "bell" as written or printed. As is the case with the corresponding auditory centres, the visual centres are connected with the ideational centre, where visual perceptions are associated with each other and with other perceptions, and

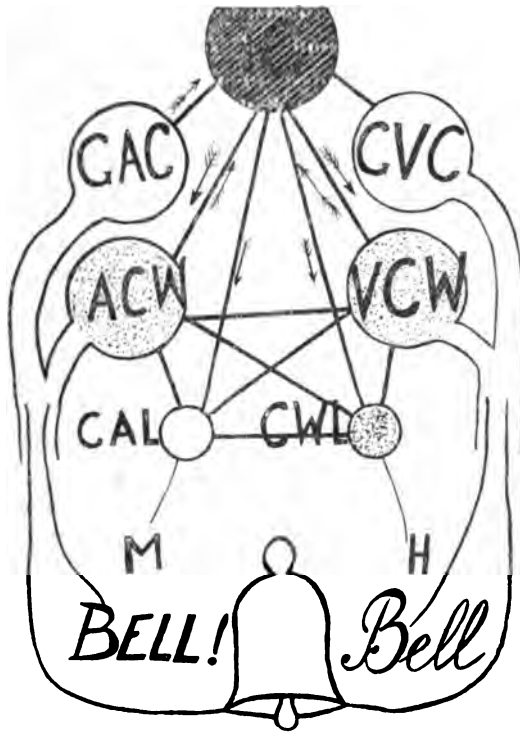


FIG. 2.

Charcot's Diagram (after Bateman).

moulded into conceptions. In reading, the path would be VCW-IC, or perhaps VCW-ACW-IC, inasmuch as to understand what is written it is usually necessary to recall the sound of the words. In reading aloud the path would be VCW-(ACW)-IC-CAL. In writing the word

"bell" the path would be IC-CWL, in copying VCW-IC-CWL, or if without understanding VCW-CWL direct. CWL, the centre for written language, is analogous to CAL.

The next diagram, which is meant to represent the views of Dr. Bastian and the late Dr. Ross, assumes, as does Charcot's diagram, that there is a centre for writing analogous to a motor speech centre. In their diagrams these authors agree in locating it (after Exner) in the posterior part of the second left frontal convolution.

That there is any centre for writing analogous to the motor speech centre is denied by Déjérine and by Wernicke and others. They hold that writing is a copying of visual word images, but that to effect this no higher motor centre is necessary, the visual word-centre presumably acting directly on the cells in the spinal cord, or indirectly on these by way of the general arm-hand cortical area. These authors admit, however, that a motor speech centre must exist between the auditory word centre and the cells in the medulla. Dr. Bastian and those who follow him believe that if the centre is necessary in the one case it must be just as necessary in the other. That the centre is to be found in the second frontal convolution, and that it is so separate from the general arm-hand centre as to be capable of isolated injury is, however, very questionable. There is no known case of uncomplicated agraphia due to lesion of the second frontal convolution, and the cases Exner cites in support of this localisation are very unconvincing of its correctness.

In this second diagram AWC represents the auditory word centre. It is part of a general auditory centre (GAC). VWC is the visual word centre, part of a general visual centre (GVC). G-KC is called the Glosso-kinæsthetic centre. It corresponds to the motor speech centre CAL of Charcot's diagram. CH-KC, the cheiro-kinæsthetic centre corresponds to the motor-writing centre.

The main points of difference between this view and the former lie in the absence in this of a separate centre for

that the primary perceptive centres are connected by converging tracts of fibres on a common intermediate cell-area where the percepts of these centres are moulded together into ideas or concepts and stored as such.

These theories represent the two main conceptions of the physiology of speech and of the nature of aphasia. Neither theory fits all cases, and so numberless modifications and additions have been advanced by various writers, the frame-work of their theories being one or other of those described. I want to bring a third theory to your notice, but before doing so may summarise how these theories have been arrived at.

Cases were observed where loss of speech was the prominent if not the sole symptom of disease.

Post-mortem appearances—more convincing, I must admit, in their collective quantity than in individual quality—showed disease of a certain area, the third left frontal convolution. A special area devoted to the co-ordination of one particular act—the act of speaking—was postulated and universally accepted. There was no analogy for this. A corresponding motor centre for writing was postulated by most authors on the analogy of the motor speech centre. There was far less anatomical support found for this centre than for the motor speech centre.

Psychological considerations led to the assumption of separate receptive centres, auditory and visual, and *post-mortem* appearances followed, more or less supporting these considerations. Psychological considerations again forced the assumption of a separate centre for concepts on many authors, but “the course of nature could no further go,” and no anatomical evidence was found in its support.

Thus the edifice of the physiology of speech production has been built on a foundation of mental analysis—often introspective—clinical and anatomical details being merely buttresses. Though I am not prepared to discard the main conception of speech production on these

grounds, I feel it would have been better had clinical and anatomical details been the foundations of our views and not merely their props.

Now, let us consider aphasia from a strictly anatomoclinical point of view. Professor Marie, of Paris, worked solely on this plan, and, disengaging himself from all preconceived notions and psychological considerations, has found himself forced to adopt a theory of aphasia which is positively startling to us, who have been accustomed to regard some positions of other writers as impregnable.

Marie's observations have led him to the conclusion that aphasia is of one kind only. It has for its constant symptom a greater or less deficit in the mental capacity of the patient. It corresponds to Wernicke's aphasia—Wernicke's mis-called *sensory* aphasia—in symptoms and in the distribution of its causative lesion. His experience of aphasics has led Marie to regard mental deficiency as present in all cases of aphasia and as the cause thereof. The site of the lesion is, he believes, the combined area of the sensory receptive centres, but he looks on this area as a unit—an intellectual area—and insists it is anatomically indivisible into special word centres, auditory or visual. In fact this area is alike in function in all its parts—the *site* of any injury to it is unimportant, the severity of the results of a lesion varies as its *extent*. It is as if Marie regarded the intact intelligence as bright sunlight. Other authors know it is a white light, but always regarding the white light through a prism of psychological considerations see it split up into its component colours. They recognise that the colours of the spectrum have no sharp delimitation one from the other; they admit the auditory and visual word centres have no sharp line of demarcation one from the other; but they insist that there is a red appreciably different from the yellow in some part of the intellectual spectrum, no matter how much they overlap and coalesce as they approach each other. In-

jury to this intellectual area Marie sees as clouds over the face of the sun hiding its brilliance—it may be, totally extinguishing its light. Other authors see the clouds as absorption bands obliterating one or more colours.

This view deals a crushing blow at the hitherto accepted doctrines, for it does away with the auditory word centre which, as we have seen, is the pivot on which the psychophysiological explanations of speech production and aphasia turn. But it will hardly create so much consternation as the next statement. The third left frontal convolution plays no special part in the function of language!

Marie bases this statement on two classes of evidence. In the first and larger class of cases typical Broca's aphasia existed in right-handed people, and the third left frontal convolution was intact. In the other class without speech trouble of any sort the third left frontal convolution was wholly destroyed.

If, then, the third left frontal convolution plays no special part in the function of language how are we to explain the undeniable clinical entity, Broca's aphasia, and how explain away the equally undeniable involvement of the third left frontal convolution in so many of these cases? Marie looks on Broca's aphasia as Wernicke's aphasia *plus* anarthria, with a predominance of the latter. In Wernicke's aphasia, as we have seen, we get some deficit in the power of comprehension, but more or less retention of the power of speaking, though incoherently and unmeaningly. In anarthria, with retention of perfect intelligence, we get more or less difficulty in utterance, amounting to absolute wordlessness. It is due to a lesion not in the cortex but in the deeper parts of the brain in the neighbourhood of the lenticular nucleus. Marie's definition of Broca's aphasia as Wernicke's aphasia *plus* anarthria amounts to this—a comparatively mild intellectual involvement, the constancy of which he is at great pains to demonstrate, *plus* a complete, or nearly complete, inability to utter a word. The condition

Marie believes due usually to a softening in the distribution of the branches of the middle cerebral artery supplying Wernicke's area only. The blocking of the branch to the angular gyrus alone, he states, results in a degeneration of the grey matter in Wernicke's area which, thanks to collateral circulation, may be of small extent, and to a degeneration of subcortical white matter (which collateral circulation very sparsely compensates) in a band of varying narrowness running forward as far as the lenticular nucleus. Individual variations in the distribution of this artery and the richness of collateral circulation may be held responsible for the varying intensity of the sensory and motor phenomena in Broca's aphasia. The involvement of the third left frontal convolution, Marie holds, is a mere coincidence which occurs in the majority of cases, as emboli blocking the middle cerebral artery usually do so before the branch supplying the third left frontal convolution is given off.

This is, very briefly, Marie's theory. So far he has not given us his views on all points, nor published details of the cases on which the views stated are founded. Detailed criticism is, therefore, uncalled-for. If favourable it would be ineffective; if adverse, unfair. I may, however, point out that, as regards the non-necessity for Broca's convolution in speech production, the cases of its destruction with no resulting speech trouble will assuredly be met with the objection that the third right frontal convolution had in these cases taken on the function of the left.

In the other cases, where the third left frontal convolution was intact, and the patients speechless, it will be urged either that the convolution was isolated from the cells in the medulla, and so became as useless as if destroyed, or isolated from the sensory area, and so became as functionless as the anterior cornual cells in the cord in a case of hæmorrhage into the internal capsule.

Marie's theory will not be accepted without a big battle, and the sound of the enemy's guns is already making

itself heard. It is, however, an interesting and novel explanation of aphasia—an explanation on clinical and anatomical evidence alone, sought out as one would seek the explanation of a cardiac or hepatic disease where psychology has no dominion, and it is pleasingly unprejudiced by any great regard for the preconceived opinions of other people. I submit it to you with a summary of other views as a field for thought. The entire subject of aphasia abounds in most interesting problems, and the views of various writers, to none of which I have done the justice they deserve, are full of ingenious suggestions and deductions that will well repay the closest examination.

ART. XI.—*Colour Vision.** By J. C. PRETORIUS, Medical Student, Trinity College, Dublin.

UP to the present two main theories of colour vision are held by physiologists—namely, the theories of Helmholtz and of Hering. The theory of Helmholtz supposes that there are elements in the retina which answer to the three primary colour sensations, whereas the intermediate shades of colour are produced by stimulation in different degrees of the three principal colour terminals. The three colour sensations are experimentally found to be red, green, and violet, which are also the broadest colour bands of the spectrum.

The theory of Hering supposes that there are six primary colour sensations—namely, three pairs of antagonistic colours, black and white, red and green, yellow and blue.

The rhodopsin, or visual purple, was supposed to play an important part in the discrimination of colour. But in frogs this substance is bleached in a few minutes, and it takes hours to regenerate. The frog with the bleached

* Read before the Dublin University Biological Association, February, 1907.

rhodopsin can still see perfectly well, as it will catch flies, and it prefers green shades to others. So the part taken by the visual purple cannot be the essential one. In both theories the colour elements are hypothetical, and cannot be demonstrated in any way. Both these theories are defective in explaining certain physical phenomena and colour-blindness. Further, it is assumed that the eye is achromatic, and that rays of light entering it are sharply brought to a focus on the rods and cones layer of the retina. At what depth in this layer the image is formed is not precisely stated. If the eye were perfectly achromatic then, as in all good optical instruments, an image would be formed on a plane in which the convergent rays meet in a mathematical point.

In physiological text-books it is stated that the image of an object is formed in the layer of rods and cones. But this layer has a definite measurable thickness. If the rays of light meet in a mathematical point as white light (assuming that it is white light which enters the eye), then the layer of rods and cones need not measure the thickness that it does.

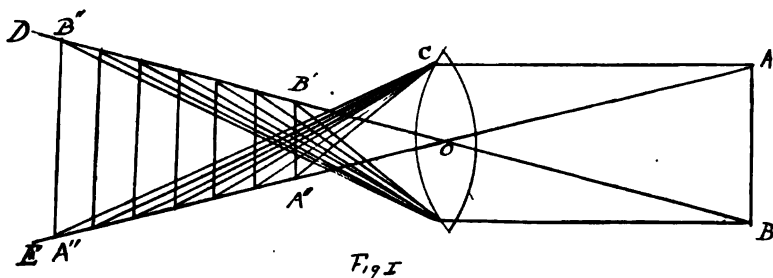
That the eye is not achromatic can be demonstrated by shutting one eye and closing up half the pupil of the other by means of a card held close to the eye, and looking at a narrow slit through which white light is admitted. If white light is used the spectrum is seen—the red end of the spectrum being always on that side on which the card is held. The same appearance is seen if lamp-light is used, but it is difficult to see the spectrum beyond green.

When, under abnormal circumstances, achromatism is proved to exist, it is called an optical defect, but a defect of such a nature that no one is aware of it.

When a ray of white light strikes a prism, it is deviated and dispersed into its elements: red, orange yellow, green, blue, indigo, and violet, the red being least deviated, the others following in the order named.

A lens is only a modification of two prisms with their

bases in opposition. Figure I. represents a chromatic lens; AB is an object. The ray from A , which passes through O , the centre of the lens, suffers no deviation as represented in the figure, is not dispersed, and strikes the cone it goes to on its long axis, as, it may be assumed, all such rays do. The ray AC , which is parallel to the axis of the lens, is dispersed, each ray being deviated towards the axis of the lens, meeting AO in the order violet to red in the layer of rods and cones. Similarly for rays from B . From the figure it is evident that seven such images are produced in the spectral colours parallel to each other from $A' B'$ to $A'' B''$ with white light, the dispersed rays with the corresponding wavelengths of the central ray. Now, $A' E$ and $B' D$ may be



supposed to represent two cones of the retina (if cones are the colour-perceiving elements). It is then reasonable to suppose that in the sharpest colour-perceiving eye all rays of white light, excepting those which pass through the centre of the lens in passing to the retina, are decomposed into their spectral elements, the dispersion being just sufficient for each colour of the spectrum to reach such a part of the cone as it is destined for. Further, that the cones are made up of segments—a segment for each colour—and that these segments have the property of perceiving each its particular colour, the visual sensation being set up by molecular vibration; and that when all the segments are equally stimulated, white light is perceived. Each colour has its own particular wave-

length, and the molecules in each segment then must have a vibration in resonance with the vibration of the molecules for that colour. As all matter, the rods and cones have molecular vibration, and it may be supposed that the mode of vibration differs in each segment as it differs in the different wave-lengths of light. When the eye is at rest the vibration in the segments causes no sensation. A colour vibration in resonance with the vibration in that segment produces vibrations of greater amplitude, and on the amplitude would depend the intensity of the colour.

When a spectral ray is made to pass through a prism, such a ray cannot be decomposed, since it is a fundamental colour, but passes through with its particular angle of diffraction. Therefore, when, say, a red object is seen, red rays of light emanate from such an object and stimulate the red segments of the cones. Similarly for other colours. Thus we perceive colours as they are in their physical state. Intermediate shades of colour in passing to the retina are analysed into their constituents which stimulate their respective segments of the cone. A saturated colour is the particular colour with admixture of some other colours. The combination of colours by means of revolving discs can be similarly explained.

The appearance of the phenomenon in the experiment with the card is probably due to interference, and if so it is a problem of tremendous complexity.

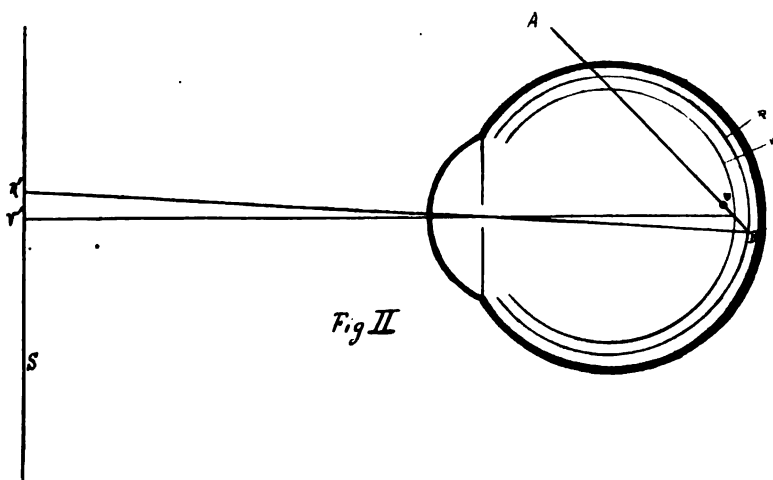
The existence of positive and negative after-images also has to be considered. In positive after-images, after the light is shut off, the vibration continues for a while. The pigment granules may play some part as dampers. Negative after-images are complementary. After looking at a dark object, and then turning the eye to a brighter field, a brighter image of the dark object is seen. The molecules in which the image is seen (really is not seen) having rested, now have greater activity. *Vice versâ*, when a bright object was looked at, and the

eye then directed to a darker field, a dark image is seen. In this case the molecules, first active, are now less responsive than those previously inactive. Successive and simultaneous contrast would come into the same category. Santonin causes yellow vision, and would stimulate the yellow segments. When the eye is exposed to light the granules of the pigmentary layer of the retina move forwards in between the rods and cones, the extent of movement varying with the intensity of the light. When the light is shut off these granules retract. They may act as dampers to prevent excess of light causing excess of vibration. In albinos the pigment is absent, and in them photophobia exists even with an artificial small pupil. The behaviour of the pigment may help to explain the difference of stimulating power for different colours of the same intensity of luminosity. Thus, the intensity for violet is given as sixteen times that for red—the pigment, being anatomically nearer the red end, may be the cause of this difference. Albinos would be suitable subjects on whom to test this.

The experiments of König lend considerable support to the view that the eye is not achromatic, for they show that the retina is stimulated at different depths by the different colours. A pencil of light is thrown, or impinges, on the sclerotic coat, and a shadow of a vessel is projected outwards on a screen (Fig. II.). For light of 670λ (red being 656λ) the distance from the vessel to the sensitive layer of the retina is given as .4402 m.m.; for light of 535λ (green being 564λ), .4141 m.m.; and for light of 434λ (violet being 433λ) it is .3643 m.m.; the difference between red and violet—i.e., the dispersion—is .0759 m.m. The length of the rods and cones is given as *about* 60μ or .060 m.m. Therefore, these measurements may be considered identical, which is in accordance with our supposition.

In connection with white light being produced by complementary colours, such as red and blue, yellow and violet, green and the purples, a reference to the spectrum

should be made. In a spectrum 9.6 c.m. long, red measured 1.2 c.m., orange .6 c.m., yellow .7 c.m., green 3.0 c.m., blue 1.8 c.m., indigo .3 c.m., and violet 2.0 c.m. Red, green, and violet measured the greatest width, which is in accordance with Helmholtz. If the complementary colours are pure—i.e., are not saturated colours—it is difficult to understand why white light should be produced. If these colours are not pure the formation of white light is more intelligible. Or, if



RV is the retina of which *R* is the red end and *V* the violet. Rays of light impinge on *v*, a blood vessel, along *AB*. With red light the shadow of the vessel is projected to *R'* on the screen, with violet to *V'*.

white light has a total molecular disturbance n , any of the complementary colours may produce a disturbance, x , a submultiple of n , with inverse luminosity, which may be interpreted as white light.

In hypermetropic and myotic eyes the thought at once occurs to one that on the above hypothesis myotic and hypermetropic eyes ought to see coloured fringes when an object is looked at. This is never complained of; but if such eyes are severely tested, colour fringes are seen,

showing that the dispersed rays do not always all strike the cone they are destined for. Fringes are also observed in the normal eye, by looking very closely (*i.e.*, within the near-point) at an object. It should be remembered that the angle of dispersion would be extremely small, and the arc it subtends on the retina would probably not measure $\frac{1}{2}\mu$, or .002 m.m., and so the tendency to see colour fringes would be very much limited, especially since there are spaces between the rods and cones. In hypermetropic and myopic eyes the position of the rods and cones and the shape of the lens formed by the vitreous humour are accordingly changed.

By using weak lenses we produce conditions analogous to myopia or hypermetropia; but an achromatic lens would only displace the image forwards or backwards as the case may be and would not interfere with the dispersion of the eye. So this way we get no further information.

In presbyopia, the ideal condition of which obtains in paralysis of the nerve of the ciliary muscle, for near and distant objects the refraction of the parallel ray is exactly the same, since the lens is the same in both cases. But the rays passing through the centre of the lens take a different path for the near or distant object of the same dimensions. By drawing a figure it is seen that no image of the near object can be formed.

Moreover, it is extremely difficult for the brain to realise what the eye sees, when the mind anticipates to see things in the way it is accustomed to see them. Barbarians with perfect sight cannot see a picture to represent something familiar to them until they are told what to expect to see, and the object is carefully traced out. Those born blind, who obtain their sight, do not see things in relief for some time. These facts show how difficult it is to make subjective observations.

Observations made on infants tend to show that the sensibility to stimulation of the different colours is developed at different periods. A number of objects of the

same size and shape, but of different colours, is presented to the infant, and when after repeated experiments the infant shows a predilection for a certain colour, it must have the power of appreciating that sensation. Red seems to be the earliest developed. The red rag to the bull is proverbial. Some of those people who are skilled in the shades of colour sometimes develop the power, it is said, of discerning ultra-violet light.

With a chromatic eye, colour-blindness may be explained in different ways. There may be some defect in the interpretation in the central nervous system; there may be some defect in the reception of the spectral rays; or there may be some defect in the dispersive power of the eye. In support of colour-blindness being a defect in the central nervous system, let it be assumed that the molecular vibration for red is x and for green y in the red and green segments of the cones, and let a be the molecular vibration in the wave-length of red, and b of green, then the sum of the molecular vibration for red is $a + x$, and for green $b + y$. If $a + x$ is a harmonic of $b + y$, a red-green colour-blindness is readily understood. The wave-lengths for red and green are incommensurate entities, and if colour-sensation is set up by molecular vibration, the vibration of molecules must be in resonance—*i.e.*, red could not stimulate any other segment. Although a and b , x and y are incommensurate, $a + x$ and $b + y$ may be commensurate, and the one be a harmonic of the other. In this, then, as in tone-deafness, the colour-blind person can be understood to be incapable of differentiating harmonics. A red light would always stimulate the red segment, and green light the green segment, but the summation is misinterpreted. White light would always be interpreted as such. After wearing coloured glasses for a long time the brain begins to see things in their natural colours. Some people, and many barbarians, are not educated to differentiate between certain colours; in them a pseudo-colour-blindness exists

which can be corrected by experience. This would show that colour-blindness is a psychical defect.

In support of there being some defect in the perception of colour in the retina, colour-blindness is adduced.

In accordance with all protoplasmic activity the retina can be fatigued for white as for any colour. Colour-fatigue can be explained by the segment of the cones for that colour being exhausted; and as this colour sensation is then, so to speak, removed from the field of action, the faulty interpretation of colours in their physical state is easily understood.

The observations made by C. J. Burch (Halliburton) are of considerable importance. The following is a brief account of his methods and results. He finds that by exposing the eye to bright sunlight in the focus of a burning glass behind transparent coloured screens, it is possible to produce temporary colour-blindness. After red light the observer is for some minutes red-blind, scarlet geraniums look black, yellow flowers green, and purple flowers violet. After violet light, violet looks black, purple flowers crimson, and green foliage richer than usual. After light of other colours corresponding effects are produced. If one eye is made purple-blind, and the other green-blind, all objects are seen in their natural colours, but in exaggerated perspective, due to the difficulty the brain experiences in combining the images from the two eyes. Here each eye makes up for the defect in the other.

By using a brilliantly-illuminated spectrum, and directing the eye to certain of its colours, the eye in time becomes fatigued and blind for that colour, so that it is no longer seen in the spectrum. Thus, after green-blindness is induced, the red appears to meet the blue, and no more green is seen. If, however, the eye is exposed to yellow light, it does not similarly become blind for yellow only, but for red and green too.

These phenomena are easily understood on the physical

basis of dispersion, but not so readily on the physiological or metaphysical hypothesis.

The fatigued segments can no longer be stimulated by its wave-length, and objects are seen black, which sensation is due to an absence of colour, and for all black objects we may interpret the sensation by the paradox that we see them because we do not see them. That purple is seen as violet is because the red element in the purple, which is a mixture of violet and red, is eliminated. With temporary violet colour-blindness purple appears crimson, and green richer because the violet element is cut out.

Further, there is another kind of colour-blindness in which there appears to be a shortening of the rods and cones. If the red end is shortened, red appears black, and so for violet. There is reason to believe that there are more spectral colours than we can perceive, but our range of vision is developed to see seven.

Defect of dispersion is not likely to exist, but after removal of the lens violet is said to appear colourless.

To produce further experimental evidence that white light is dispersed in the eye is extremely difficult. The moment the eye is excised it is no longer the same; if it is frozen its density is changed; if in a living animal the fovea centralis be approached and a window made over it in the external coats, the intra-ocular tension is altered, and the eye is no longer normal. From theoretical considerations, even in the absence of experimental proof, an explanation of colour vision on a physical basis is more acceptable than an obscure physiological one.

“COMA” AS A BEDSTEAD.

At the Dublin Four Courts, recently, in the course of the hearing of a probate suit, Mr. Timothy Healy, K.C., M.P., asked a witness did he, on his arrival, find Mr. Blank, the testator, lying in a *coma*? “No, sir, in an ordinary bed” was the unexpected reply of the Co. Monaghan witness.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

THE MEDICAL EPITOME SERIES.

Microscopy and Bacteriology. A Manual for Students and Practitioners. By P. E. ARCHINARD, A.M., M.D.; Demonstrator of Microscopy and Bacteriology, Tulane University of Louisiana, Medical Department. Series edited by V. C. PEDERSEN, A.M., M.D.; Instructor in Surgery and Assistant Anæsthetist at the New York Polyclinic Medical School and Hospital; Deputy Genito-Urinary Surgeon to the Out-patient Department of the New York Hospital; Physician-in-Charge St. Chrysostom's Dispensary; Anæsthetist to the Roosevelt Hospital (First Surgical Division). Illustrated with 74 Engravings. London: Hodder & Stoughton.

THIS extremely neat little volume gives the reader the best "Epitome"—without exception—which, so far as we know, has hitherto been prepared on the theory and practice of its very important subject-matter. The space at the disposal of the author was, necessarily, limited to an embarrassing degree. Such is one of the notable conditions which in practice elicit the best skill, and display the most competent judgment, of the author (and compiler). As the writer of the lucidly-compressed booklet now before us very truly and modestly states in his preface: "The merit of an epitome consists in affording a concise and clear presentation of essentials, command of which enables the student to build a sound super-structure of knowledge." And the author has filled in this outline programme with the best skill and discrimination. We cordially recommend this initial guide-book to the notice of the student (and the "rusty" practitioner who is about to enter his name for a course of "post-graduate" lectures).

Physiology. A Manual for Students and Practitioners.

By THEODORE GUENTHER, M.D., Assistant Physician, Norwegian Hospital, Brooklyn, Chief of Medical Clinic, Norwegian Hospital Dispensary, Member of King's County Medical Society; and AUGUSTUS E. GUENTHER, B.S., formerly Assistant in Physiology in the Medical Department, University of Michigan. Illustrated with 57 Engravings. London: Hodder & Stoughton.

THE beautiful type and paper which the volumes of this series offer to the over-tasked, and, accordingly, neurasthenically-irritable optical organs of the reviewer almost disarm him—at least of half his panoply—at the first opening of the leaves. We feel that the over-burdened victim of the five-years' medical curriculum of our twentieth century: whether he happen to be, or not to be, a direct descendant of Issachar; whether of strong or feeble physique, has the most responsible and the most sensitive of his mental—and physical—faculties already too heavily taxed, and too severely tested, by the bearing of the burdens imposed upon him during his pilgrimage of preparation for the ultimate transit of the Jordan limit which must be crossed before taking possession of the promised land of practice: and that such scoliotic weights should not be made still more intolerable by unnecessary eye-strain, and other factors of avoidable torment and detestable taste. The next great essential to clearness of type and paper is the clearness of style and diction, which cannot always be so definitely secured even by the outlay of the largest purchase-money by the investing parties who are chiefly concerned in the production of a scientific manual. Accordingly, we are unusually delighted to find that all these sources of luminosity and of enjoyment have been successfully focussed in the production of the small volume now before us. The authors modestly inform the reader that it has not been their object to supersede "the more elaborate text-books, but to supplement them by covering the essential features of the subject," by gathering together "those facts of physiology with which medical students and practitioners should be

familiar." And they have carried out their purpose most efficiently and attractively. We cordially congratulate them on the way in which they have carried out their chosen task; while we feel it our duty to compliment the publishers, Messrs. Hodder & Stoughton, on the excellent taste with which the items of this series has, up to the present, been uniformly issued.

A Series of Midwifery Wall Diagrams for the Instruction of Midwives and Students of Midwifery. By VICTOR BONNEY. M.S., M.D., B.Sc. (Lond.), F.R.C.S., M.R.C.P.; Lecturer on Practical Midwifery, Middlesex Hospital. Bristol: John Wright & Co.

DR. VICTOR BONNEY'S midwifery wall diagrams are undoubtedly a success, especially to professors and teachers who are not expert artists in black and white. The diagrams to hand, Nos. I. and X., afford proof that he has gone over the ground thoroughly. If we could find any fault it would be that the last figure in No. I. might be more explicit. No. X. diagram—on persistent posterior occipital positions and breech positions—is a most useful and instructive number. We would advise teachers of the subject to provide themselves with a set of these diagrams as a most useful adjunct to their lectures.

AEQUANIMITAS. With other Addresses to Medical Students, Nurses, and Practitioners of Medicine. By WILLIAM OSLER, M.D., F.R.S.; Regius Professor of Medicine, Oxford. Second Edition. With three Additional Addresses. London: H. K. Lewis. Post 8vo. Pp. x + 475. 1906.

THIS new edition of a collection of Professor Osler's addresses can hardly be said to call for any criticism of ours—in the sense which is usually connoted by this somewhat rasping noun-substantive. Our readers, one and all, have long known that the name and fame of William Osler now occupy—with the possible exception of Lord Lister's—the most conspicuous position of those of any living member of our profession. And, in both these

cases, the popular selection has been (for at least this twice in the annals of scientific fame) cordially endorsed by the most scrutinising criticism, as well as by the most spontaneous sympathy, of all their contemporaries who are qualified to form a reliable opinion. It surely is a relief, in the course of a generation decidedly restless, if not always actually "perverse," in its disarrangements of aristocratic power and scientific eminence, to find that the beacon guide-lights are sometimes placed on the right elevations. And most so of all to us of the distracted Isle of the saintly and the learned, whose misty *scientific* atmosphere is so frequently illuminated by *political* Will-o'-the-Wisps, apparently selected for the purpose as the most demonstrative illustration of the possibilities of the Irish "Bull." Not that, let us add parenthetically, such characteristic practice does not possess its special recommendations—as adopted in a community which furnishes an enormous over-proportion of the members of one of the most jealous professions. It is sometimes such a relief to see those specimens selected for public praise and decorative honour whose presence and pronouncements always furnish their "brethren" with more amusement than awe, more grinning derision than jaundiced envy!

England's premier University has well illustrated its democratic wisdom by importing the now "brightest jewel on her zone" from another hemisphere—thereby depriving a distant rival, indeed, of its principal source of illumination, but at the same time registering what we believe to be an unprecedented record in the history of scientific progress. The inspiration, and opportunity, of Professor Osler's severance from the Johns Hopkins University furnish the text of the three "Valedictory Addresses" which form the added matter of this second edition. The first number in this unique trinity of farewell utterances bears the title of "The Fixed Period." The cosmopolitan fame of this single item has more than realised the poetic conception of Virgil, and may be said to have created a literature of its own during the couple of annual solar revolutions which have taken place since its delivery. Accordingly, we conclude this un-

critical notice of Professor Osler's welcome "Addresses" with a cordial wish that *we* may long enjoy the benefit of his presence on this side the Atlantic, and that *he* may long continue to furnish an exemplary exception to his own vaguely general rule—that a man's best intellectual work is done before the age of —? We forget the precise number, and cannot now re-examine "The Fixed Period"—as we must catch the last train! K.

Observations in the Federated Malay States on Beri-beri.

By C. W. DANIELS, M.B., M.R.C.S. London: E. G. Berryman & Sons. 1906.

THIS monograph by Dr. Daniels is included in the series of studies from the Institute for Medical Research of the Federated Malay States, and forms an important addition to the present knowledge of the ætiology and incidence of beri-beri. Dr. Daniels starts by an enunciation of the two main theories which have been promulgated with regard to the cause of the disease—namely, (1) That the syndrome beri-beri is secondary to some lesion or disease occurring in the same man, and (2) that beri-beri is secondary to the absorption by man of a poison generated or existing outside the human body. The method that he has adopted to inquire into these theories is an examination of the history of the occurrence of beri-beri in the prisons and mines of Malay. The prison life where epidemics have occurred is analysed and set down in detail, and from the analysis the important conclusion is arrived at "that the one constant factor in prison beri-beri is the admission of cases in the early stages of beri-beri to the gaol. Such admissions are usually followed by an outbreak of the disease." The conclusion is, in fact, drawn that the disease must be infectious from man to man. Diet, including fish, has not been found to have any recognisable causative influence. Another fact determined is that the admission rate to the hospitals throughout the country generally rises during the wet season. The supposed effect of rice, diseased or otherwise,

is examined into most carefully, and the general conclusion arrived at is that it is not in any way related to the disease. On the whole, the writer is inclined to suspect that the disease is of a parasitic nature, and he suggests that possibly the infection is conveyed by either *Cimex lectularius* or *Pediculus capitis*. The suggestion is, however, only thrown out as a ground for future work. The result of this inquiry is to clear the way of many unfounded theories and speculations, and it should be of interest not only to those who are actually engaged in studying the subject, but also to all who take an interest in Tropical Medicine.

Aneurysm of the Abdominal Aorta. By F. P. NUNNELEY, M.A., M.D. London: Baillière, Tindall & Cox. 1906.

THIS little volume is the author's thesis for the M.D. degree in the University of Oxford, and if we may regard it as a fair example of the monographs offered for that degree it speaks highly for the standard of those who possess the higher Oxford qualification. It is in its essence an analysis of the cases of aneurysm of the abdominal aorta which came to a necropsy in St. George's Hospital during the last sixty-five years. In addition to the actual analysis, however, the writer devotes a considerable portion of his space to a general discussion of symptoms and ætiology. Among the special points that he confirms and illustrates by his cases are:—

- (1) The incidence of the disease in the early prime of life; thus 16 out of 32 cases died before the age of thirty-five.
- (2) The great rarity of the disease in women.
- (3) The rarity of abdominal as compared with thoracic aneurysm, the ratio being about 1 to 5.
- (4) The fact that abdominal aortic aneurysms usually extend laterally, and very rarely backwards.

Among symptoms we are surprised to notice that the gastric symptoms so often present are not more specially referred to. Apparently, also, dilatation of the stomach from pressure on pylorus or duodenum did not occur in the series of cases, as no men-

tion is made of it. As regards diagnosis, considerable balm is extended to any who have themselves been tripped up over such cases, for we learn that only 13 out of the 32 were diagnosticated during life, and that at Guy's Hospital in only 18 out of 54 was a correct conclusion arrived at before the autopsy. The writer is not very sanguine as to the results of treatment. Like everybody else he is dubious about the value of Tufnell's methods, and though apparently without personal experience of Lancereaux's gelatine method, is quite rightly unprepared to defend it on the results that have up to this been published. Surgical treatment is not regarded as very hopeful, and ligation of the aorta itself is stated to be unjustifiable. We cannot help thinking, however, that rather too gloomy a view is taken when the author says:—"The outlook is well nigh hopeless, and as compared with thoracic aneurysm the expectation of life is short." The latter part especially of this statement should be considered in connection only with those cases that were diagnosticated before death.

We have read this little book with extreme pleasure and with profit, and can recommend it heartily.

Dental Materia Medica, Therapeutics, and Prescription Writing.

By ELI H. LONG, M.D.; Professor of Dental Materia Medica, Dental Department of the University of Buffalo, &c., &c. Second Edition. London: Hodder & Stoughton. MCMVI.

THIS handsome work reflects honour alike upon the dental profession, the author, and the publishers. That the dental art can call for such treatises proves with what strides it has advanced amongst the learned professions during the past few decades.

The large number of drugs and agents which are, with the greatest care, clearness, and order, treated of in the pages makes one at first sight dubious as to the need for including so many as essential to the dentists' armamentarium. But a closer and deeper view will show that, directly or indirectly,

such as are dealt with do, or may, from time to time, prove useful in the hands of him who would desire to keep pace with the times.

The manual, which runs to some 300 pages, is divided into twenty chapters, and in these are discussed, in interesting and readable, yet scientific, form, all that the dental surgeon in his daily routine practice would likely need to know of medicinal treatment, whether local or constitutional.

Thoroughly up to date, enriched by the presence of not a few excellent diagrams showing (often in colour) the various centres (from an anatomical standpoint) as they are affected by the several substances under consideration, printed in bold type, well indexed, and handsomely got up—this work is one which would worthily find a place upon the dental bookshelf. A chapter on anæsthetics is especially good, embodying the latest theories with respect to this important subject. As a work of reference, the book is most useful, and we can well understand that an entire edition has already become exhausted.

G. P. M.

A Handbook of the Diseases of the Nose and Pharynx. By JAMES B. BALL, M.D. (Lond.). Fifth Edition. London: Baillière, Tindall & Cox. 1906.

IN preparing a fifth edition of his "Handbook on the Diseases of the Nose and Pharynx," the author has not enlarged it unduly, and the increased size of the page is a great improvement, while the printing and paper are much better.

Beginning, if such may be permitted, at the end of the book, we find that the formulæ have been rendered considerably more valuable by several additions and corrections.

On page 76, "Local Anæsthesia," the author adds some further information on local ischæmia; and, in this connection, it may be mentioned that he states he has never seen marked toxic symptoms following the application of cocaine, even pretty freely, although such have been recorded.

On page 79 are described the anomalies and malformations of the pharynx. But, unfortunately, on page 115, Fig. 50, a woodcut supposed to show the method of operating on the

middle turbinal, and which is absolutely incorrect, is again reproduced, although we pointed out this error in our previous notice of this work.

The part devoted to the important subject of sinus disease has been very thoroughly revised, the "Diseases of the Maxillary Sinus" having been almost entirely rewritten. It may be noted that the author repeats his opinion that in the diagnosis of sinus empyema the only satisfactory *modus operandi* is by making an exploratory puncture, and washing out the cavity. This will be endorsed by practically all specialists.

The book is nicely finished, and readable, and makes a capital *vade mecum* for the student and the practitioner.

Manual of Surgery. By ALEXIS THOMSON, F.R.C.S. Ed., Assistant Surgeon Edinburgh Royal Infirmary, Surgeon to the Deaconess Hospital, Edinburgh; and ALEXANDER MILES, F.R.C.S. Ed., Assistant Surgeon Edinburgh Royal Infirmary, Surgeon to Leith Hospital. Volume First. General Surgery. Second Edition, Revised and Enlarged, with 313 Illustrations, mostly wood engravings. Young J. Pentland. 1906. Pp. 808.

WE were very favourably impressed with the first edition of this manual on its appearance in 1904, and our perusal of it since then has but confirmed the opinion we formed of it. We predicted success for it, and the fact that a second edition is demanded within three years proves our prediction correct.

A comparison of the volume before us with the corresponding volume of the first edition shows us that the book has been subjected to a thorough revision, while much new matter has been added, necessitating an additional 45 pages.

The teaching is highly practical, eminently sound, and thoroughly up to date. We have no hesitation in recommending the book as one of the very best, if not the best, a student can procure.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. MAGEE FINNY, M.D., F.R.C.P.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF MEDICINE.

President—JOSEPH M. REDMOND, M.D., P.R.C.P.I.
Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

Friday, December 7, 1906.

THE PRESIDENT in the Chair.

Our Debt to Ireland in the Study of the Circulation.

DR. GEORGE A. GIBSON (Edinburgh) read a paper on the above subject. [It will be found at page 241.]

The thanks of the Academy were conveyed to Dr. Gibson by the President of the Academy (Professor Finny), who was followed by Professor Little, Sir John Moore, and Professor W. H. Thompson.

SECTION OF SURGERY.

President—H. R. SWANZY, P.R.C.S.I.
Sectional Secretary—EDWARD H. TAYLOR, M.D., F.R.C.S.I.

Friday, January 11, 1907.

THE PRESIDENT in the Chair.

Some Points in the Treatment of Enlarged Prostate.

MR. L. G. GUNN made a communication on the above subject. He thought that too much attention was paid to the operative treatment of this affection. As many cases can be greatly

benefited, though not cured, by non-operative treatment, it is well to remember this before advising a patient to have the gland removed. Mr. Gunn then gave a brief account of work he had seen at Paris, London and Berlin. At the first city prostatectomy was hardly ever performed, at London it was always advised, while in Berlin palliative measures were often used. The speaker then gave in detail the lines on which he tried to carry out the treatment of such cases, giving a short account of 41 cases of enlarged prostate which he had treated. Of these 11 had required operation, 9 had made good recoveries, 2 had died, 19 cases had been treated by palliative means with more or less relief. None of these had to use a catheter, as Mr. Gunn believed that the risks of catheter life must be always greater than the risk of an operation.

MR. WALTON BROWNE (Belfast) was pleased to hear Mr. Gunn advocating not being in a hurry in dealing with such cases. He believed a good deal could be done by washing out the bladder.

MR. C. A. K. BALL expressed the view that a large number of cases had been operated on in the past which, no doubt, would have lived, and perhaps in a more comfortable state, had palliative measures been tried instead of operation. He thought that palliative measures ought to be employed unless there was absolute obstruction to the flow of urine.

MR. D. KENNEDY thought that before recommending either palliative or radical treatment the circumstances of the patient should be taken into consideration. A well-to-do patient could afford to avail himself of skilled surgical aid, and might well decide to undergo treatment of a palliative nature; but in the case of a man without means the proper employment of a catheter or other palliative measures might be attended with difficulty.

MR. BLAYNEY considered that there was a certain amount of danger attending the return to more conservative measures in the treatment of enlarged prostate. Many cases which had ended fatally after operation would probably have recovered had radical measures been carried out earlier.

An Early Case of Leontiasis Ossea.

MR. S. HORACE LAW described a case of the above. The chief points of interest were as follow :—When first seen, some four

years ago, the condition of swelling was much less marked, and I did not think that it was pathological, though I distinctly remember being struck by the bilateral enlargement on each side of the nasal processes of the superior maxillæ. The patient then complained of nasal obstruction, and the removal of adenoids gave him relief, though not for long. I saw him once or twice since then, but the peculiar enlargement did not strike me until this last occasion (November, 1906), when the growth had become marked. The condition found is as follows:—"The patient is a small boy for his age, which is twelve, but upright and sturdy. He seems strong and in good general health, and his only complaint is nasal obstruction, and that was what brought him to me. On examination, a hard bilateral growth is seen in the infra-orbital region, extending up in such a way as to cause the eyes to be pushed outwards, and also to bring about exophthalmos. The lateral walls of the nose are pushed towards the middle line so as to occlude the nostrils, though a probe can be passed up to the sphenoid, &c., and air can be blown through the nose. The naso-pharynx is not involved. The pharynx and palate are normal. The antra of Highmore are dark to transillumination, and when I passed an ordinary antrum drill in through the canine fossa on the right side I failed to reach a cavity, though I went in about an inch in two directions. The bone was soft and spongy." One may, therefore, conclude that there are two large osseous masses lying on either side in the infra-orbital regions, filling both antra and extending in various directions, as mentioned above. Incidentally, he has dacryo-cystitis on both sides. X-ray photographs show dense shadows corresponding to the obvious growths; and especially I would mention the shadow of growth lying between the orbits, and the fact that the cranial vault of this child is about the same thickness as one would expect to find in an adult.

THE PRESIDENT regarded the dacryo-cystitis, not as a coincidence, but rather as the direct result of the bony growth. He thought the best mode of treatment would be extirpation of the lacrymal sac on each side, as, under existing circumstances, ulceration of the cornea of a very intractable type would be likely to occur.

MR. WALTON BROWNE alluded to the symmetrical appearance of the two eyes. If the orbits were at all involved they must, he believed, be involved to an equal extent.

ACONITE ("Wolf's bane"; "Leopard's bane"; "Women's bane"; "Venus's Chariot"; "Scorpion"; "Monkshood"; "Blue Rocket"), "Queen-Mother" of Poisons: its place in History, in Mythology, in Criminology; in Botany, in Therapeutics, and in Toxicology. By JOHN KNOTT, M.A., M.D., Ch.B. & D.P.H. (Univ. Dub.); M.R.C.P.I.; M.R.I.A.; &c.

(Continued from page 228.)

THE transition of such mingled items of animal and vegetable lore, through mediæval, down to modern literature, is well exemplified in Sylvester's *Du Bartas*:

"Onely the touch of Choak-pard Aconite
Bereaves the Scorpion both of sense and might."
—, III., xxvii., 1.

—and in Shakespeare's:

"Though it doe worke as strong
As Aconitum, or rash Gun-powder."
2 Henry IV., Act iv., Scene 4.

—a curious approximation of the old world to the new; of the silent and subtle life-destroying agent which represented the most uncanny skill of classical times, to the fulgurating exterminator which was popularised with the Science and Art of the Renaissance!

The domain of *Animal Therapeutics* was, as all well-informed readers know, cultivated by the ancients with a most assiduous (and imaginative) degree of industry. It formed, indeed, during countless ages one of the most prominent articles of the healer's faith—of which recent scientific *discovery* has presented the admiring world with a feeble effort towards resuscitation. And, in this department, we find that so familiar and grateful a remedy as *cow's milk* was highly recommended as an antidote against aconite. So was the "*broth made of tripes*." We are confidently informed, too, that the "*broth of an old Cocke*" "is most effectuell against the poison of the herbe Aconitum, but then it must be given with a little salt among." The *Castoreum*, of whose origin tales so curious were told by the ancient pharmacists and natural historians, was also included in the same rank; for we are assured that: "*soueraigne it is*

for the poison of the herb Aconitum or Libard bane, in milk or faire water."

Supplementary catalogues of "antipathies" were, as might well be expected, prominently placed in the records of mediæval scientific lore; and were—as a natural consequence—highly recommended as antidotal reagents. That foremost mediæval luminary of the healing art, the Arabian Avicenna, whose *Canon* functioned for five centuries as a sort of medical Bible in orthodox professional practice, informs his readers that there is a mouse which feeds upon the root of aconite, and that "that mouse is the Treacle thereof, and being taken in the whole substance, resisteth the venome of the *Napellus*, and freeth them from all danger." These statements are corroborated by Matthiolus, the famous commentator of Dioscorides, who assures his readers that he had often found that mouse! The redoubtable Petrus Aponensis also contributes corroborative testimony on this head. He confidently informs the inquiring reader that "this Mouse which feedeth upon the roots of *Napellus* is the *Bezoar* against *Napellus*, if it be dryed and two drams of the poudre given in drinke." But, unfortunately—as ever—for the harmony of "expert" medical testimony, we have yet other three names of authoritative respectability ranged on the opposite side! Antonius Gualianerius, Petrus Pena, and Matthiolus de Lobel are, each and all three, of the opinion that it was really *not* a mouse at all, but a *midge*, that was intended by the great Arab physician; that it was either by a scribe's slip, or a reader's blunder, that the subsequent Greek *Textus receptus* presented a $\mu\hat{\nu}\hat{\iota}\hat{\varsigma}$ instead of the original $\mu\hat{\nu}\hat{\iota}\hat{\alpha}$; that the root in question is really as deadly to mice as to men and to wolves; while, on the other hand, they quote the ocular evidence of "the Shepherds, and others living in those mountains of Switzerland, where the *Napellus* groweth in abundance," to the fact of "great store of certaine great Flies, with blewish greene heads and wings, like unto *Cantharides* feeding upon the flowers, when as they could not finde any other creature to touch or eate it; of which Flies as they say and not of any Mouse, is made an antidote most prevalent against the poison of the most venomous Spider called *Tarantula*, as also against all other Epidemicall, generally contagious diseases, and is made after this manner. Take twentie of the flies that have fed upon *Napellus*, of *Aristolochia* and *Bolearmonicke*, of each a dramme, whereof a dramme is to be

taken at a time." And we further learn that the antidote of Guaiacum against Aconite "is to be made with *Terra lemnia*, Bayberries, and Mithridate of each two ounces; xxiii. of the Flies that have fed upon *Napellus*; of hony and oyle a sufficient quantitie to make it up into an Electuary." And in this connection, Parkinson sagely remarks, in conclusion, "that *Dioscorides* and others doe write, that the *Aconitum Lycocotanum* (whereof *Napellus* is a kind and as strong) is also called *Myocotonon* or *Myophonon*, that is *Muricida*, because it killeth Mice, as well as Wolves, and therefore they could not live upon it if it would kill them." (The logic and diction of the last clause can hardly fail to strike the reader as being somewhat suggestive of Hibernian inspiration.) The statement of Pliny with regard to its telepathic influence on mice has been already quoted, and presents a curious contrast to the opinion attributed to Avicenna.

But this weirdly unique herb of the "helmet-flowers" was noticed to display a bilateral antipathetic symmetry towards certain members of its vegetable, as well as of its animal, living contemporaries. The *Anthora* possessed an established reputation as the "Counterpoison of Monkes hood"; and of it we are told by one of the grand old herbal authorities that it "groweth with or hard by the *Napellus* or *Thora*; although *Gerard* saith the contrary, and adviseth that it be not planted near the *Napellus* or Helmet flower for feare of drawing the venemos [sic] qualitie thereof with it." Among the many antidotes which the fertile imagination of classic antiquity provided against the life-destroying powers of aconite, we find that *Garlic* occupied an honoured place. And when we find the authority of the elder Pliny pledged to the statement that, not only "it is of power to dull and kill the force of the venomous herb *Aconitum*," but that also "it conquereth the soporiferous and deadly quality of Henbane: the bitings also of a mad dog it healeth, if it be applied upon the hurt . . . As for the sting of serpents verily, Garlick is exceedingly effectual if it be taken in drink; but withal you must not forget to make a liniment of it;" and even that "the very sent thereof chaseth Serpents and Scorpions away;" we can hardly feel further surprise that the Roman (and Italian) peasantry were so devoted "Garlick-eaters" as they were in the days of (Shakespeare's) *Coriolanus*. Another of these antidotes is the *Er,n ion*, or "*sea-oll*," which also shared with garlic a fair proportion of the power against snake-poison. Indeed,

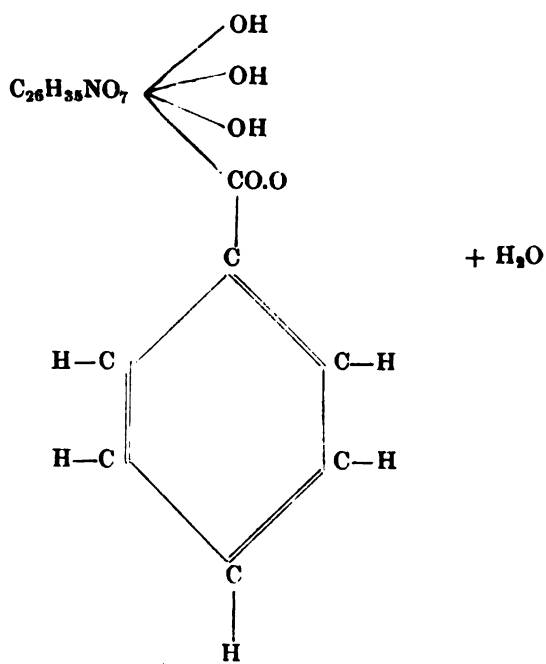
"Heraclides the Physitian" was of opinion that its root, "boiled in the broth of a goose is of more efficacie than all other" against aconite, and also sundry other potent vegetable poisons. Curiously enough, Apollodorus recommended its preparation for the same purpose by having "a frog sodden withal." This mode of administration savours distinctly of the methods of the exploring vivisectionist of our own generation; while the statement of Pliny, that "Mere wine (*merum*) not delaied is a remedy against" this and many other poisons, both of animal and vegetable origin, goes to show that the ancients displayed a distinct appreciation of the use of alcoholic stimulants in the extreme cardiac depression produced by certain toxic agents. Of another celebrated remedy we are told by the same Pliny that: "The Balsame oil, called *Balm*, is of all others most pretious . . . It danteth and mortifieth the poison of Aconitum, if it be taken with milk." Another antidote of high reputation in those classical ages of pre-scientific faith was *mulberry-juice*, of which we are told that "it is a singular counterpoison for them who have drunke either the juice of Aconit [i. Libard-bane], or swallowed a venomous spider." The *house-leek* also possessed "this peculiar virtue, to resist the deadly poison of the herb Aconitum." It is interesting to notice that Pommet, the great French authority of the seventeenth century on the history and properties of "Drugs," informs his readers of the *Anthora*: "the Peasants who gather this on the Alps and Pyrenees use it with Success against the Biting of mad Dogs, and to cure the Colic; they take it for a sovereign Remedy for those who have eat the *Thora*, or deadly *Aconite*." We are also assured by Pliny that "the greater *Sengrene* hath this peculiar vertue to resist the deadly poison of the herb Aconitum. Furthermore it is sayd, that whosoever carry it about them shal not be stung by scorpions."

The well-known reputation of aconite would necessarily have the effect of providing the popular imagination with numerous antidotes in times when the curative effects of faith or of fancy were rarely submitted to critical examination, and almost never to scientific tests. The separation and identification of "active principles" existed in a remote future only; the almost miraculous accuracy and reliability of "Stas's process" had never been reached by any of the dreamy alchemists of the older centuries. As I have elsewhere shown in the present communication, the

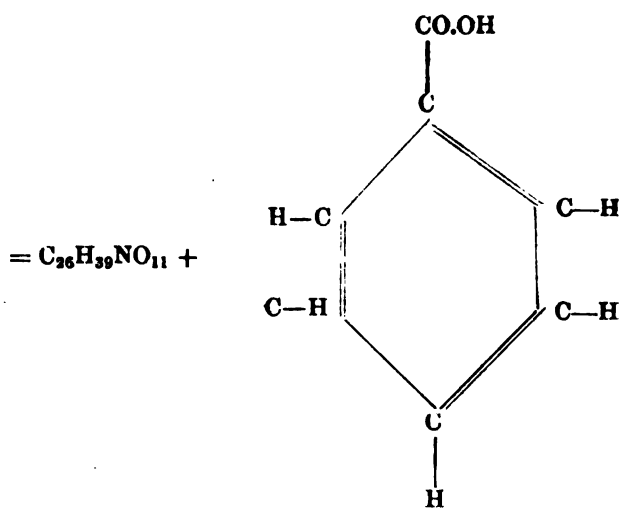
greater virulence of the root of the aconite plant was known to Matthiolus (middle of 16th century). The crystalline alkaloids have a distinct gravitational tendency in the structure of the individual plant whose juices abound in such. Aconitine, the most powerful and deadly of these agents, was separated by Brandes; but evidently in a very crude form. Hesse, in 1833, appears to have isolated the compound in a state of tolerable purity. But, from the purely scientific standpoint, all researches and results associated with aconitine down to those of Duquesnel (1870) may now be neglected. This accomplished chemist and pharmacist appears to have been the first who succeeded completely in the isolation of the alkaloid in a chemically pure state. His results led him to assign to it the formula $C_{27}H_{40}NO_{10}$. Subsequent researches, however, led to the adoption of $C_{33}H_{45}NO_{12}$ as the true representation of the aconitine molecule; this seems to be now accepted of all chemists. It appears to include the benzene nucleus, to which so large a proportion of the constitutional formulæ of the "new chemistry" owe their genesis, for it has been decomposed by certain reagents into benzoic acid and *aconine*, another alkaloid compound. And the latter has been supposed to behave as a tetraphenol of which aconitine is the monobenzoic ether. [See facing page.]

From the *A. ferox* of India has been obtained a distinct alkaloid, which has received the names of *pseudaconitine* ($C_{36}H_{49}NO_{12}$) and *nepaline* (the latter from its principal geographical source). It undergoes decomposition under the influence of corresponding reagents; but it yields a distinct alkaloid, *pseudaconine*, ($C_{27}H_{41}NO_9$) while benzoic acid is replaced by *dimethylprotocatechic acid*.

But it would seem that the heart of the physical mystery of aconitine has not even yet been successfully plucked out: its solutions used to be described as lævo-rotatory, but the recent experiments of Dunstan and Ince have announced its *dextro*-rotatory property; and a further scientific complication has been introduced by the announcement, by Richards and Rogers, of the discovery of *two isomeric* aconitines, differing widely in their toxic properties; so that it is perhaps better, in the interest of clinical (and even of toxicological) enlightenment to await the clearance of this scientific atmosphere before further discussion. One thing is certain: the last word has not yet been said on the chemical and physical structure of aconitine.



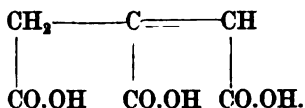
Aconitine.



Aconine,

Benzoic acid.

The *aconitic* acid with which it is associated in the plant has been shown to have the composition represented by the structural formula—



—and is, accordingly, isomeric in composition with trimethylene-tricarboxylic acid. It is a somewhat curious coincidence that some of this acid has been shown to exist in the sugar cane, and in beet root.

The peculiar and interesting aspect of the flowering head of the *Aconitum napellus*, to which it owes the appellation of “monks-hood,” is, of course, well known to every one who has taken even a superficial interest in botanical curiosities. In the crystalline language of the French botanist: “Les fleurs bleues forment une grappe terminale. Le calice coloré, pris communément pour la corolle, bleu, quelquefois blanc dans l’aconit napel, jaune dans autres espèces, est composé de cinq sépales très inégaux, dont le supérieur ou postérieur est en forme de capuchon. En reversant ce capuchon on découvre deux filets rappelant deux étamines, mais que ne sont que des rudiments de corolle, terminés chacun par un petit capulet. Avec un peu d’imagination, le sépale ainsi renversé peut être comparé à un char, les appendices qui terminent les deux pétales à un attelage de deux colombes, d’où le nom de *char de Vénus*.”

It has been observed that although *Aconitum napellus* will grow in all soils and climes, it prefers the rocky and dry positions, so that it is found to flourish most conspicuously at the moderate elevations of mountainous regions. Accordingly, the Swiss aconite is still generally believed to be the best. Generally speaking, however, the Southern countries yield a more active specimen than do those of the North. The plant in its wild state has also been found more active than the cultivated specimen. (These facts were noted by Matthioli, and have been confirmed by modern observation ever since his time.) Schrott has observed that it is more active before flowering than after; an interesting fact which is, pretty surely, dependent on the upward trend of the stored-up active principles from the root at the season of renewed vegetative activity.

Descending now to the records of recent botanical discovery and classification, we find De Candolle arranging 107 known

varieties of the genus *Aconitum* in 22 species, which are classified in 4 sections. We then have H. Baillon, the great French authority on medical botany, disposing the species of this genus which are utilised in therapeutics—also in 4 sections. Of these, the first is represented by the *Aconitum Napellus* (of Linnæus, the *A. vulgaris* of Clusius). The cognomen of *Napellus* owes its origin to the fact that the root expands “en un reservoir de sucs napiforme.” The discovery, by Wallich, of the source of the Hindu poison, *Bisch*, has added the *A. feroz*. The Japanese aconite, *A. fischeri*, constitutes a still more recent acquisition to this list. The second is the *A. Anthora* (Linn.), which was regarded by Clusius as a distinct genus. The third is the *Cammarum* (*A. paniculatum*) of Lamarck, the *Lycactonum autumnale* of the older botanists. The fourth is the *Lycactonum*.

The number four would, indeed, almost appear to possess some specific attraction for the scientific investigators of aconite. We find Fleming, in his epoch-making thesis on this subject, not only arranging his specimens in the four sections of De Candolle, but also tabulating the symptoms and signs of their physiological action—in medicinal or poisonous doses—in four selected compartments, according to “degree of operation” (consequent on amount of dose). It is also worth noting from the same authority, writing in 1845, and as illustrative of the peculiar and dangerous uncertainty which always overshadowed the properties as well as the identity of the most deadly member of the vegetable kingdom, that : “The *A. paniculatum* has been adopted by the Dublin and London Colleges, on the supposition that it was the species used by Störck. I have distinctly ascertained, however, that it is totally inert ; an observation which Dr. Christison has fully confirmed.” The significance of the peculiar influence of Baron Störck in connection with aconite and its applications, which is so clearly implied in this quotation, must be understood by all who would have clear ideas on the therapeutic history of aconite. For the inauguration of the modern clinical employment of the preparations of this plant is undoubtedly due to the experimental researches and consequent recommendations of that eminent and enthusiastic physician. In 1762 was published his *Libellus quo demonstratur Stramonium, Hyoscyamum, Aconitum, non solum tuto posse exhiberi usu interno hominibus, verum et ea esse remedia in multis morbis maxime salutifera*, which soon came to exercise a vast influence on Continental practice. Even an approximately corresponding recognition was not established in these islands

till the best part of a century had elapsed ; and this fact was in great measure due to the uncertainty associated with the connotation of the term *aconite*—as the above quotation from Fleming, I think, very clearly indicates. Störck believed that this agent had a *specific influence* on the *skin*, and on various *neuralgic* affections. He also reported great benefits obtained from its employment in many acute diseases. His remarks on *rheumatism* in this connection form an interesting item of eighteenth century pathology : “*Aconiti extractum esse innocuum et valde efficax medicamentum. Parva dosi præstat id quandoque, quod alia fortissima remedia, magna dosi et longo tempore exhibita, efficere nequeant. Acre, quod circa articulos, tendines et ossa hæret, irritat nervos, excitatque summos dolores, solvitur inde, agitur in motum, et per urinam, vel alvi fluxum, vel sudorem, vel insensibilem transpirationem, ex corpore ejicitur.*” (In perusing such record of some of the scientific conceptions of one of the intellectual giants of a long past generation, the critical reader should charitably bear in mind that nobody then even remotely suspected that the phenomena of rheumatism were generated by the presence of a microbe, or that it would be shown at some future day to be one of the *infectious* diseases.)

(To be continued.)

THYMINIC ACID IN GOUT.

R. FENNER (*Pharm. Journal*) writes :—Thyminic acid is a nuclein derivative which, it is claimed, has the property of holding uric acid in solution and preventing its precipitation. It represents nucleic acid from which the uric acid yielding bases have been removed, and is the natural organic solvent of uric acid in the body. It thus prevents its deposition in the tissues in the form of salts. Minkowski gives its formula as $C_{30}H_{46}N_4O_{15} \cdot 2P_2O_5$; Kossel as $C_{16}H_{25}N_3P_2O_{12}$. It has the very interesting property of holding in solution practically its own weight of uric acid at a temperature of $20^\circ C.$, while this property of retention is increased by 50 per cent. at the blood temperature of $37^\circ C.$ Thyminic acid may be given internally as a powder, in an elixir, or in the form of compressed tablets. Its administration has not been attended by any toxic or untoward symptoms. It is best given with or immediately after meals, in doses of from four to seven grains.—*International Therapeutics*, Vol. II., No. 12 December, 1906.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, February 23, 1907.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending February 23, 1907, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 25.2 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,117,547. The deaths registered in each of the four weeks ended Saturday, February 23, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Feb. 2	Feb. 9	Feb. 16	Feb. 23			Feb. 2	Feb. 9	Feb. 16	Feb. 23	
22 Town Districts	22.5	25.6	28.8	25.2	25.5	Lisburn -	18.2	4.5	22.7	27.3	18.2
Armagh -	34.4	6.9	13.7	61.8	29.2	Londonderry	17.2	13.5	20.9	27.0	19.7
Ballymena	14.4	28.7	38.3	23.9	26.3	Lurgan -	48.7	8.9	35.4	31.0	31.0
Belfast -	20.7	27.2	28.6	20.6	24.3	Newry -	25.2	21.0	12.6	25.2	21.0
Clonmel -	10.3	35.9	20.5	35.9	25.6	Newtown-ards	22.9	17.2	24.3	17.2	22.9
Cork -	26.0	19.2	26.7	30.8	25.7	Portadown -	10.3	10.3	31.0	31.0	20.7
Drogheda -	20.4	45.0	12.3	28.6	26.6	Queenstown	6.6	19.8	6.6	6.6	9.9
Dublin (Reg. Area)	24.8	28.6	31.4	27.1	28.0	Sligo -	14.4	9.6	24.0	9.6	14.4
Dundalk -	35.9	27.9	27.9	19.9	27.9	Tralee -	5.3	26.4	37.0	21.1	22.5
Galway -	15.5	23.3	31.1	11.7	20.4	Waterford -	25.3	31.2	39.0	42.9	34.6
Kilkenny -	34.3	24.6	19.7	54.1	33.2	Wexford -	18.7	37.4	51.4	23.3	32.7
Limerick -	19.1	16.4	21.9	20.5	19.5						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, February 23, 1907, were equal to an annual rate of 1.1 per 1,000, the rates varying from 0.0 in thirteen of the districts to 8.0 in Dundalk—the 5 deaths from all causes registered in that district including one from measles and one from diphtheria. The 146 deaths from all causes registered in Belfast include one each from measles, scarlet fever, and enteric fever, one death from cerebro-spinal fever, and 11 returned as from *cerebro-spinal meningitis*. Among the 45 deaths registered in Cork are 3 from whooping-cough, one from diphtheria, and one returned as from *cerebro-spinal meningitis*. There were 2 deaths from diarrhoea among the 22 deaths from all causes in Londonderry. The 22 deaths in Waterford include one from scarlet fever. One of the 6 deaths from all causes in Newry is from whooping-cough, and of the 11 deaths from all causes in Kilkenny there was one from whooping-cough.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 390,691, that of the City being 300,850, Rathmines 35,606, Pembroke 27,854, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, February 23, 1907, amounted to 195—98 boys and 97 girls; and the deaths to 209—115 males and 94 females.

DEATHS.

The registered deaths represent an annual rate of mortality of 27.9 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the Area, the rate was 27.1 per 1,000. During the four weeks ending with Saturday, February 23, the death-rate averaged 29.5, and was 0.1 above the mean rate for the corresponding portions of the ten years, 1897–1906.

The registered deaths (209) included 3 from whooping-cough, one from diphtheria, 2 from enteric fever, and 3 from diarrhoeal diseases. There were 4 deaths from influenza. In each of the

3 weeks preceding, deaths from whooping-cough were 2, 6 and 4; deaths from diphtheria were 0, 0 and one; deaths from enteric fever were 0, 2 and 0; deaths from diarrhoeal diseases were 2, 2 and one; and deaths from influenza were 6, 4 and 9.

The deaths from pneumonia included 2 from lobar pneumonia, 8 from broncho-pneumonia, and 13 deaths from *pneumonia* (not defined).

Of 34 deaths from all forms of tuberculous disease, there were 3 from tubercular phthisis, 15 returned as from *phthisis*, 8 from tubercular meningitis, one from tubercular peritonitis, and 7 from other forms of the disease. In each of the 3 preceding weeks, the total deaths from all forms of tuberculous disease were 36, 40 and 37.

Two deaths were due to carcinoma, 2 to sarcoma, and 3 to cancer (undefined).

The deaths of 4 infants were caused by prematurity.

Of 17 deaths from diseases of the brain and nervous system, 5 were from meningitis, and 4 were of children under 5 years of age from *convulsions*.

There were 24 deaths from diseases of the heart and blood vessels. Bronchitis was the cause of death in 38 instances.

Six deaths were attributed to accidental causes. Of these, 2 were deaths of infants under one year of age by suffocation in bed. One death by suicide was registered.

In 5 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the death of one infant under one year old and the deaths of 3 persons aged 60 years and upwards.

Sixty-eight of the persons whose deaths were registered during the week were under 5 years of age (37 being infants under one year, of whom 9 were under one month old) and 54 were aged 60 years and upwards, including 29 persons aged 70 and upwards, of whom 6 were octogenarians, and one (a man) was stated to have been 90 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious disease

notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended February 23, 1907, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever (a)	Total
City of Dublin	Feb. 2	-	•	•	3	3	-	1	-	5	1	8	-	•	•	•	31
	Feb. 9	-	•	•	4	1	-	6	-	5	18	18	-	•	•	•	34
	Feb. 16	-	•	•	5	-	-	8	-	8	14	14	-	•	•	•	46
	Feb. 23	-	•	•	3	2	-	6	-	3	4	18	-	•	•	•	31
Rathmines and Rathgar Urban District	Feb. 2	-	•	•	1	-	-	-	-	-	1	-	-	•	•	•	2
	Feb. 9	-	•	•	4	-	-	-	-	-	-	-	-	•	•	•	4
	Feb. 16	-	•	•	1	-	-	2	-	-	-	-	-	•	•	•	3
	Feb. 23	-	•	•	-	-	-	-	-	-	1	-	-	•	•	•	1
Pembroke Urban District	Feb. 2	-	-	-	-	-	-	-	-	-	1	-	-	•	-	-	1
	Feb. 9	-	-	-	2	-	-	2	-	-	-	-	-	•	1	-	3
	Feb. 16	-	-	-	-	-	-	-	-	-	1	-	-	•	1	-	2
	Feb. 23	-	-	-	-	-	-	-	-	-	-	-	-	•	2	-	2
Blackrock Urban District	Feb. 2	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	3
	Feb. 9	-	•	•	5	-	-	-	-	-	-	-	-	•	•	•	5
	Feb. 16	-	•	•	2	-	-	-	-	-	-	1	-	•	•	•	3
	Feb. 23	-	•	•	3	-	-	-	-	-	-	-	-	•	•	•	3
Kingstown Urban District	Feb. 2	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	3
	Feb. 9	-	•	•	1	-	-	-	-	-	-	1	-	•	•	•	4
	Feb. 16	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	3
	Feb. 23	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	3
City of Belfast	Feb. 2	-	•	•	17	-	-	4	-	2	6	13	-	•	•	-	42
	Feb. 9	-	•	•	12	-	-	9	2	3	10	12	1	•	•	12	61
	Feb. 16	-	•	•	19	-	-	10	2	11	12	5	2	•	•	19	80
	Feb. 23	-	•	•	19	-	-	6	-	7	17	8	-	•	•	29	86

(a) Sir Charles Cameron reports 7 cases of cerebro-spinal meningitis as having occurred in the City of Dublin in addition to 3 cases for week ended the 16th instant.

The Registrar of Castlereagh No. 1 District (Belfast) reports:—"A death occurred in my rural district from cerebro-spinal meningitis. The child was five weeks old. The death has been notified me, but is not yet registered."

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended Saturday, February 23, 1907, 12 cases of measles were admitted into hospital, 11 patients were discharged, and 47 cases remained under treatment at its close.

Seventeen cases of scarlet fever were admitted to hospital, 10 were discharged, and 83 cases remained under treatment at the close of the week. This number is exclusive of 13 convalescents under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

One case of typhus was admitted to hospital, 6 cases were discharged, and 3 cases remained under treatment at the close of the week.

Eight cases of diphtheria were admitted to hospital, 3 were discharged, there was one death, and 26 patients remained under treatment at the close of the week.

Two cases of enteric fever were admitted to hospital, 2 were discharged, and 27 cases remained under treatment in hospital at the close of the week.

One death from cerebro-spinal meningitis was reported as having occurred in hospital during the week.

In addition to the above-named diseases, 11 cases of pneumonia were admitted to hospital, 5 were discharged, there were 3 deaths, and 27 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, February 23, 1907, in 76 large English towns, including London (in which the rate was 17.1), was equal to an average annual death-rate of 17.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 18.8 per 1,000, the rate for Glasgow being 20.3 and that for Edinburgh 18.0.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, M.D., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ending February 23. From this Report it appears that of a total of 39 cases notified 15 were scarlet fever, 16 diphtheria, one membranous croup, 5 erysipelas, and 2

enteric fever. Among the 335 cases of infectious diseases in hospital at the close of the week were 105 cases of scarlet fever, 52 of whooping-cough, 49 of measles, 48 of diphtheria, 3 of membranous croup, 16 of erysipelas, and 12 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of February, 1907.

Mean Height of Barometer,	-	-	30.002 inches.
Maximal Height of Barometer (5th, at 9 a.m.),	-	-	30.572 „
Minimal Height of Barometer (12th, at 7 a.m.),	-	-	28.907 „
Mean Dry-bulb Temperature,	-	-	38.9°.
Mean Wet-bulb Temperature,	-	-	36.8°.
Mean Dew-point Temperature,	-	-	33.8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	.197 inch.
Mean Humidity,	-	-	82.0 per cent.
Highest Temperature in Shade (on 15th),	-	-	55.7°.
Lowest Temperature in Shade (on 5th),	-	-	28.4°.
Lowest Temperature on Grass (Radiation) (5th),	-	-	24.0°.
Mean amount of Cloud,	-	-	55.9 per cent.
Rainfall (on 14 days),	-	-	1.304 inches.
Greatest Daily Rainfall (on 11th),	-	-	.379 inch.
General Direction of Wind,	-	-	W., N.W.

Remarks.

The weather was distinctly cold until the 14th, when a mild spell set in connected with a strong westerly or oceanic wind, which swept across Europe along isobars running from W. to E. and showing steep gradients. The cold weather at the beginning was of anticyclonic origin; afterwards it was related to the N.W. winds of certain V-shaped depressions which drifted in from the Atlantic.

From the 17th to the 22nd inclusive, very stormy, rough weather prevailed. This was brought about by the presence of unusually deep atmospheric depressions in the North, while an anticyclone covered the Peninsula and France. On the morning of the 18th, the barometer was down to 28.32 inches at Reykjavik in Iceland, whereas it was as high as 30.38 inches at Biarritz. But a still greater range of pressure was observed at 8 a.m. of Wednesday, the 20th, when the barometer reached the unusually

low level of 27.65 inches at Skudesnaes, in the S.W. of Norway, the reading at Lisbon being 30.44 inches—a difference in atmospheric pressure at sea level of more than two inches and three-quarters (2.79 inches). Small wonder that a destructive tempest strewed the shores of North-Western Europe with wreckage. A fine display of aurora borealis was seen on the night of the 9th. During the last six days the weather was fine and quiet with densely overcast skies.

In Dublin the mean temperature (40.3°) was 2.2° below the average (42.5°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 38.9°. In the forty-three years ending with 1907, February was coldest in 1895 (M. T. = 34.2°), and warmest in 1869 (M. T. = 46.7°) and in 1903 (M. T. = 47.5°). In 1906 the M. T. was 39.7°.

The mean height of the barometer was 30.002 inches, or 0.147 inch above the average value for February—namely, 29.855 inches. The mercury rose to 30.572 inches at 9 a.m. of the 5th, and fell to 28.907 inches at 7 a.m. of the 12th. The observed range of atmospheric pressure was, therefore, 1.665 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 38.9°, or 2.8° below the value for January, 1907. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .50), the M. T. is 40.3°, compared with a thirty years' (1871–1900) average of 42.5°. On the 15th the thermometer in the screen rose to 55.7°—wind, S.W.; on the 5th it fell to 28.4°—wind, W. The minimum on the grass was 24.0° on the 5th.

The rainfall was 1.304 inches, distributed over 14 days. The average rainfall for February in the thirty-five years, 1866–1900, inclusive, was 1.990 inches, and the average number of rainy days was 16. The rainfall, therefore, and the rainy days were below the average. In 1883 the rainfall in February was large—3.752 inches on 17 days; in 1879 also 3.706 inches fell on 23 days. On the other hand, in 1891, only .042 inch was measured on but 2 days. In 1906, 1.644 inches fell on 20 days.

The atmosphere was foggy on the 1st, 2nd, 3rd, 5th, 12th, 13th and 14th. The amount of cloud—55.9 per cent.—was considerably below the average—66 per cent. At 9 p.m. it was only 52.9 per cent. High winds were noted on 9 days, and reached the force of a gale on 6 days—namely, the 12th, 16th, 17th, 18th, 19th and 20th. Hail fell on the 10th, 12th and 19th. Snow or sleet fell on the 4th, 8th, 12th, 20th and 21st. Lunar halo s w r

seen on the 18th, 21st and 22nd. Solar halos appeared on the 11th, 16th and 19th. There was a fine aurora borealis on the night of the 9th, and a faint display on the 10th.

The temperature reached or exceeded 50° in the screen on 6 days, while it fell to or below 32° on 14 nights, compared with as many as 18 nights in 1895. The minima on the grass were 32° or less on 18 nights, compared with every night in 1895. The thermometer failed to rise to 40° in the screen on the 22nd and 23rd. The highest minimum was 48.4° on the 17th.

In Dublin the rainfall up to February 28th, 1907, amounted to 1.732 inches on 23 days, compared with 5.771 inches on 42 days in 1906, 3.872 inches on 29 days in 1901, 3.362 inches on 22 days in 1902, 5.503 inches on 35 days in 1903, 5.847 inches on 36 days in 1904, 2.647 inches on 26 days in 1905, and a thirty-five years' (1866-1900) average of 4.220 inches on 34 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. William J. Good, reports that the mean height of the barometer was 29.998 inches, the highest reading observed being 30.565 inches at 9 a.m. of the 5th, the lowest, 28.996 inches at 9 a.m. of the 12th. The mean temperature was 40.5° , the mean dry-bulb reading at 9 a.m. and 9 p.m. being 39.5° . The screened thermometers fell to 26.7° on the 3rd, and rose to 55.4° on the 18th. The grass minimum was 16.6° on the 3rd, while the black bulb *in vacuo* rose in the sun to 95.3° on the 18th. The mean daily maximum was 46.0° ; the mean daily minimum, 34.9° ; and the mean daily minimum on the grass, 29.4° . Rain fell on 12 days to the amount of 1.180 inches, .375 inch being measured on the 11th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 75.6, giving a daily average of 2.7 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was 38.8° ; at a depth of 4 feet, it was 42.2° .

The rainfall at Leeson Park, Dublin, is given by Dr. C. Joynt, F.R.C.P.I., as 1.351 inches on 13 days, .426 inch having been measured on the 11th.

At the Ordnance Survey Office, Phoenix Park, the rainfall was 1.337 inches on 13 days, the maximal measurement in 24 hours being .340 inch on the 11th.

Miss Muriel E. O'Sullivan reports that at White Cross, Stillorgan, Co. Dublin, 1.185 inches of rain fell on 14 days, .482 inch, the maximum, being measured on the 11th. Since January 1, the rainfall at this station equals 1.625 inches on 21 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 13 days to the amount of 1.29 inches, the greatest daily fall being .47 inch on the 11th. In February, 1901, the rainfall was 1.55 inches on 10 days; in 1902, it was 2.76 inches on 11 days; in 1903, 2.95 inches on 15 days; in 1904, 4.05 inches on 21 days; in 1905, 1.07 inches on 12 days, and in 1906, 2.03 inches on 18 days. The temperature in the shade ranged from 54° on the 15th to 28° on the 3rd. The mean temperature in the screen was 39.6°, compared with 39.0° in 1902, 47.1° in 1903, 40.4° in 1904, 43.6° in 1905, and 39.6° in 1906.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was 1.230 inches. The heaviest fall in 24 hours was .650 inch on the 11th. In February 1901, the rainfall was 1.385 inches on 11 days; in 1902, it was 2.590 inches on 8 days; in 1903, 2.870 inches on 14 days; in 1904, 2.957 inches on 19 days; in 1905, .650 inch on 9 days; and in 1906, 1.845 inches on 14 days.

At Clonsilla, Greystones, Dr. Arthur G. Price recorded 1.58 inches on 13 days, .69 inch being measured on the 11th. The mean temperature of the month was 39°, the extremes being—highest, 56°, on the 18th; lowest, 28°, on the 2nd and 6th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 1.613 inches on 14 days. The greatest fall in 24 hours was .55 inch on the 11th. The mean shade temperature was 37.1°, the extremes being—highest, 53°, on the 18th; lowest, 24°, on the 23rd.

The rainfall at Cloneevin, Killiney, Co. Dublin, as observed by Mr. Robert O'B. Furlong, C.B., amounted to 1.21 inches on 12 days, compared with 2.35 inches on 12 days in 1902, 2.08 inches on 14 days in 1903, 3.56 inches on 20 days in 1904, .79 inch on 14 days in 1905, and 1.31 inches on 17 days in 1906. The average rainfall for February during 22 years, 1885–1906, at this station is 1.814 inches on 14.1 days. The greatest rainfall in 24 hours was .37 inch on the 11th. Since January 1 the rainfall was 1.74 inches on 18 days, compared with 5.39 inches on 39 days in 1906, 3.08 inches on 26 days in 1905, 5.98 inches on 37 days in 1904, 4.90 inches on 35 days in 1903, 3.97 inches on 24 days in

1902, and 4.39 inches on 28 days in 1901. Snow or sleet and hail fell on the 7th, 19th and 20th.

Dr. T. H. Peyton, M.B., Resident Medical Superintendent of the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, reports that in December, 1906, the rainfall at that station was 2.209 inches on 12 days, the maximal measurement for 24 hours being .798 inch on the 15th. The mean temperature for the month was 42.5°, the extremes being—highest, 59°, on the 1st; lowest, 28°, on the 29th.

The total rainfall for 1906 was 27.305 inches on 182 days.

In January, 1907, the rainfall was .467 inch on 7 days. The mean temperature was 42.5°; the screened thermometer rising to 53.6° on the 12th, having fallen to 22° on the 2nd and 3rd.

In February, the rainfall was 1.606 inches on 16 days, .762 inch falling on the 11th. The mean temperature was 41.2°. On the 15th the thermometer rose to 55.2° in the screen, having fallen to 27.8° on the 1st.

In 1907, up to February 28, the rainfall at Newcastle amounted to 2.073 inches on 23 days.

The Rev. Arthur Wilson, M.A., returns the rainfall at the Rectory, Dunmanway, Co. Cork, at 3.37 inches on 19 days, the greatest fall in 24 hours being .98 inch on the 11th. The rainfall for January and February equals 6.07 inches on 41 days.

In the City of Cork, Mr. William Miller registered 1.86 inches of rain on 17 days, the largest measurement in 24 hours being .63 inch on the 11th. The rainfall was 1.57 inches below the average for February. During the first two months of 1907 the rainfall was 2.93 inches, or 4.70 inches below the average. The thermometer in the screen rose to 52° on the 15th and fell to 25° on the 24th. The mean temperature was 38.4°, or 4° below the average for the month.

Dr. J. Byrne Power, D.P.H., F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 40.7°, being 2.2° below the average for February during 20 previous years (1873–83 and 1898–1906), the extremes being—highest, 56°, on the 15th and 18th; lowest, 28.5°, on the 1st. At Bournemouth the mean was 38.9°, the extremes being—highest, 53°, on the 17th; lowest, 23°, on the 3rd. The mean daily range was 9.8°; at Bournemouth it was 11.4°. The mean relative humidity was 81 per cent., being equal to the average for the month during the previous 6 years. The total

rainfall was 1.21 inches on 14 days, being 0.93 inch below the average for the month during 17 previous years (1873-83 and 1901-06). The duration of bright sunshine was 98.7 hours, as compared with 91.4 hours at the Phoenix Park, 87.6 hours at Southport, and 105.6 hours at Bournemouth.

A comparison of the following meteorological conditions prevailing at Kingstown during 1906 with similar ones at other stations throughout the United Kingdom, as given in the Annual Summary recently issued by the Meteorological Office, may be of interest :—(1) The annual mean temperature, 50.4° at Kingstown, was higher than that at any of the other 131 stations given, with the exception of 20, and this, notwithstanding the excessive summer heat at 17 of those 20 stations. (2) The annual rainfall at Kingstown, 20.9 inches, was less than that at any other of the 140 stations given, with only 8 exceptions. (3) The total duration of bright sunshine at Kingstown, 1,688 hours, was greater than that at 85 out of the 130 other stations given.

PERISCOPE.

THE XVI. INTERNATIONAL MEDICAL CONGRESS.

THE XV. International Medical Congress, held in April, 1906, at Lisbon, have chosen Budapest, the capital of Hungary, for the site of their next assembly in 1909, and the preliminaries are already being arranged. His Imperial and Apostolic Royal Majesty the King has graciously taken upon himself the patronage of the ensuing Congress. The State and town have each contributed 100,000 crowns to defray the expenses, and the Organisation, Executive, Financial and Reception Committees have already been formed. The work of the Congress will be distributed in twenty-one sections, each branch of science having a separate section assigned to it. The date of the opening of the Congress is fixed for the 29th of August, 1909, and the sessions will be continued till the 4th of September. There is every reason to presume that the Congress will be well attended. Judging from the geographical situation of Budapest, at least from 4,000 to 5,000 members may safely be reckoned upon to attend. The first circular, which will contain every necessary information as well as the statutes, will be ready for circulation in the cours_e

of the year 1907. Meanwhile the Secretary-General of the Congress, Professor Emil Grósz, M.D. (whose address is XVI International Medical Congress, Budapest, Hungary, VIII., Esterházy-utca 7), will have much pleasure in giving information to inquirers.

THE RIGHT HON. LORD LISTER, O.M.

On Friday, April 5, our famous and well-beloved Joseph Lister will complete the eightieth year of his eventful, beneficent, and useful life. In common with the whole Medical World at home and abroad, we wish him many happy returns of the anniversary of his birth and continued health and enjoyment in his ripe and hale old age.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

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THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

MAY 1, 1907.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XII.—*Maniacal Chorea*.^a By J. MAGEE FINNY, M.D.
Dubl., F.R.C.P. ; Physician to Sir Patrick Dun's Hospital ;
President of the Royal Academy of Medicine of Ireland.

CHOREA is one of the commonest of all nervous affections met with in hospital, as well as in private practice, and is very often associated with rheumatism. It presents varying degrees of severity, from the mildest form, consisting of awkwardness of movement and facial grimaces, to incessant, irregular movements and contortions, with such jerking and throwing about of the limbs, that the patient must be confined to bed, and watched to prevent her from injuring herself.

In these latter cases (*chorea gravis*) some delirium, with delusions, is not uncommon. But there is yet a still more grave form of chorea, in which mania may supervene, and so completely overshadow the motor disturbances that the true nature of the disease may be overlooked and the patient sent to an asylum.

So wide is the difference in the symptoms that it seems

^a Read before the Section of Medicine, Royal Academy of Medicine in Ireland, March 1, 1907.

hard to realise that it is really not another and a new disease but only an exaggerated variety of the chorea simplex of Sydenham.

The following is an example of maniacal chorea, or "chorea insaniens" :—

CASE.—From notes taken by Mr. Thos. Graham, Resident Pupil.—Annie O., aged seventeen years, unmarried, was admitted to Sir Patrick Dun's Hospital on June 14, 1906 suffering from marked choreiform movements, particularly of the left arm and hand. Six years ago she was treated in another hospital for enlarged cervical glands. She has enjoyed good health ever since, up to a fortnight ago, when she was treated for rheumatic pains in the legs; two days before admission these pains left her, and then the choreic movements became manifest. The patient herself says she had a "fright," but could give no explanation of its nature, and the accuracy of her statement is questioned by her sister and mother, with whom she lived. She refers her trouble to her head, and said her mind was being affected. The motor disturbance is not confined to any part of the body—the trunk, head, arms and legs participating, but the left side was most affected; the eyes rolled about, and she continually uttered a sort of sob, and had delay and difficulty in answering questions, which she did in a sudden, jerky fashion, but with intelligence. The deep reflexes were not increased. The pulse was about 80, and of low tension; temperature 98°. A systolic murmur was distinctly audible in the mitral area. The skin over the lumbar vertebrae was congested, but not broken, and the toes were of a dusky blue colour. A mixture of ammon. brom. and liq. arsenicalis was ordered; and chloral, in 15 grs. doses, was given at bedtime. She did not sleep, but became so noisy and obstreperous with shouting and screaming that she was moved into a ward by herself, and our House Surgeon considered she was a case of acute mania, and suggested her removal to the Richmond Lunatic Asylum. The choreic movements next day were very violent, and in a day or two after admission, in spite of all care, she barked her elbows, rubbed her heels sore against the bed clothes, and with the heel of one foot abraded the skin of the opposite instep. Her back was also stripped over the sacrum. She could hardly speak, but at times would become calm for a few minutes, and could be fed with soft,

thick food. She was given $\frac{1}{2}$ gr. of hyoscin hydrobrom., with good results for a few hours, but a second dose was useless either to calm the motor excitement or to procure sleep, while 20 grs. of chloral gave about three hours' sleep. She was quite maniacal at times, striking out, shouting and screaming, or uttering deep, raucous sounds, refusing food at times, and then taking it readily. She passed her motions and water involuntarily in the bed, as, owing to the extreme violence of the muscular system, the use of a bed pan was out of the question. The urine obtained on one occasion was found to be acid, sp. gr. 1014, and free from albumen and sugar; it contained calcium oxalate crystals. During the short sleeps obtained by chloral she was perfectly motionless, and her breathing was quiet. The temperature, which was normal on admission, rose to 100° on the evening of the 18th, the fourth day, and fell again to 97.5° next morning. It remained normal till the evening of the 21st, when it shot up to 103.4°. The pulse, when it was possible to count it, was usually about 80-90. but on the morning of the 21st it rose to 130. The murmur in the heart was audible all through, and proportionately as the heart beat more violently in the times of great motor excitement it became more distinct.

During the 19th and 20th her condition continued in much the same state—periods of calm, in which she would say some words intelligently, such as “no thank you, sir,” alternated with periods of wild activity in which she had to be held down in the bed, and in which she flung her legs and arms about in the strangest fashion. Owing to the involuntary biting by her teeth, and the rubbing of them by her hands, her lips were sore and bleeding. She was indeed a pitiable object. The mental disturbance was maniacal in type—at one time with delusions, and again with hallucinations, and lastly one of semi-coma. In the afternoon of the 21st she became particularly violent, after a rather calmer forenoon, and remained in a continuous state of turbulent activity till about 9 30 p.m., when I went to see her. She could not be restrained by six attendants from knocking herself about, and all the wadding and padding and bandages which had been put around her limbs to prevent her injuring herself were rubbed or torn loose. A strait waistcoat was then put on and her legs wrapped round in a sheet. Although these means prevented her springing out of bed and injuring her limbs, she kept up, nevertheless, an incessant wriggling and

movement, while she was bathed in perspiration. She had had chloral, a hypodermic of morphin, hyoscin, but the only remedy that succeeded in calming her was chloroform inhalation. Under it she became quite quiet, and the various appliances to keep her in bed were loosened, so that she was not oppressed in any way that night. She slept quietly, and took nourishment fairly well at times. Rectal feeding could not be managed. Next day, however, she looked very ill. The heart was beating excitedly (the mitral systolic murmur being present), the pulse was 140 very compressible, respiration 44, and temperature, which had risen to 103.4° at 7 p.m. the previous evening, was 102.4° at 7 a.m., 101.8° at 10 a.m., and 101.4° at 2 p.m. The motor disturbance was much less, and she was quiet, but in a semi-comatose condition. Loss of flesh had been noticeable for some days, but now that the limbs were quiet they were seen to be extremely emaciated. This was the 9th day of her sojourn in hospital. At 4 p.m. she suddenly became unconscious, her respirations very laboured, and her extremities and face cyanosed; $\frac{1}{100}$ gr. digitalin and $\frac{1}{20}$ strychnin were immediately injected hypodermically, but without avail, and she died in five minutes.

The *post mortem* examination was made on June 24th.

Dr. O'Sullivan, F.T.C.D., Pathologist to the Hospital and Lecturer on Pathology in Trinity College, Dublin, has kindly supplied me with the following report :—

The longitudinal sinus contained a small quantity of mixed clot. The vessels of the cortex of the brain were engorged. A very small amount of fluid was found in the lateral ventricles. The brain presented no abnormal appearances to the naked eye. It was fixed in formalin, and pieces were subsequently removed from various parts and examined microscopically. The only portion which presented any abnormal appearances was in the Rolandic Area. Here some of the small vessels in the cortex were thrombosed. In others, collections of cells with oval nuclei lay heaped up in the perivascular lymphatic spaces, and there were clumps of what appeared to be broken up nuclear material in these spaces. The spinal cord was also examined, and presented nothing abnormal. The cerebro-spinal fluid was examined bacteriologically in the media recommended by Wassermann for the cultivation of the coccus found by him in

rheumatic cases, but the culture remained sterile, and no micro-organisms were found in the meninges on section. The other organs of the body showed no abnormality, with the exception of the heart, which was in a very atrophic condition, and some calcified tubercular glands in the mesentery and in the root of the lung.

Remarks.—The prominent features presented by this case were:—Rheumatic pains in the legs for a fortnight, upon which chorea supervened. A mitral systolic murmur, audible on admission, of varying loudness, and lasting up to the ninth day—the day of her death. The pulse quiet and regular, about 80 each day up to the last three days, when it rose to 110, 130, 140. The temperature normal or sub-normal until the day before death, when it touched 103.4°. The choreic movements were slight for about forty-eight hours, and then became so violent that two special nurses were required to watch her and prevent her from falling out of bed and from striking her limbs against the parts of the bed. (The idea of treating her by placing her mattress on the floor, with pillows around, was considered, but discarded in favour of the bed with nurses at either side.)

The psychical phenomena were prominent, out of all proportion, and at first quite overshadowed the motorial. They differed, however, by the absence of incoherent speech and wild garrulity, from the forms one is accustomed to associate with the acute delirium of fever or acute mania.

Another point worth noting was the occasional, though temporary, mental calm which my visits, once or twice a day up to the last three days of her life, seemed to produce. At these times she would cease shouting, the movements became quieter, she could always understand what was said, and sometimes she succeeded in speaking and making intelligent replies, such as “yes, sir;” “no, sir;” and “thank you, sir.”

Treatment by medicines totally failed to have any effect on the course of this terrible disease, and the only help it gave was by securing some hours of sleep and muscular rest during sleep. The drug which seemed most useful for that purpose was chloral. On two days $\frac{1}{40}$ gr. of hyoscin hydro-

brom. (once repeated) was successful in calming the violence of the delirium, but it failed to have any effect the last two days of her life; while morphin hypodermically was practically useless.

The occurrence of a systolic murmur at the mitral area, which was considered on admission to be probably due to rheumatic endocarditis of some two or three weeks' duration, must now, in the light of the autopsy, be judged to have been dynamic, and due to simple and acute ventricular dilatation. It is not to be explained on the grounds generally accepted—viz., anæmia and choreic cardiac excitement.

The foregoing case is an example of one of the rarest diseases to be met with in the practice of Medicine. It is one of the most grave of the varieties of chorea, whether regard be paid to the extreme violence of the muscular movements, the psychical disturbance, or its acute course, usually terminating in death. "Truly a terrible disease is maniacal chorea" (Osler).

In evidence that this variety of chorea is very uncommon I would point to the very scant literature on the subject, the paucity of published clinical records, and the very short description it receives in standard works of reference on medicine and on insanity.

Two of the most recent works I have been able to consult are "The Text-book of Psychiatry," by Bianchi and MacDonald, 1906; and "Clinical Psychiatry," by Kraepelin and Johnston, 1904. No reference to "maniacal chorea" appears in the index of either, while under the title of "Choreic Insanity" a very different condition is described.

Bianchi writes: "A choreic subject is always mentally affected, the character of the child or young adult is changed; he becomes irritable and fearful, his sentiments are altered, his power of attention is defective, and he may suffer from hallucinations."

Kraepelin writes: "Senselessness and bewilderment, with choreic movements, occasional hallucination, a morbidly cheerful mood and great restlessness, with rapid physical sinking, are particularly diagnostic of choreic insanity."

From these excerpts it is evident that these authors never met with a case of maniacal chorea, and it is a matter of regret, if not of negligent omission (to say the least of it), that they should not have made themselves familiar with published cases of this disease in the British Isles.

The same adverse comment is applicable to the majority of books I consulted, be they written by specialists in mental and nervous disease, or text-books on the Practice of Medicine. Thus Mercier, Bevan Lewis, Hack Tuke, von Ziemssen, Quain's Dictionary, Reynolds' System of Medicine, Strümpell and many other text-books in medicine give no description of any such marked psychical complication as was portrayed by my case. In some, such as Ross and Allchin, it is said "Chorea in adults is sometimes followed by acute mania." Gowers makes the short comment—"The mental state may not appear till the disease be well developed, or it may precede the chorea. The latter may be slight or quickly cease, while the mental disturbance continues in an intense form. There are often delusions, sometimes wild, violent excitement, without the garrulity common to ordinary mania. This excitement may be followed by apathy or dulness." However, Hilton Fagge, Clifford Allbutt, Roberts and Osler are notable exceptions, and they attest to the reality of the extent and the gravity of maniacal chorea; while Clouston (Mental Diseases) gives in detail a typical case of rheumatic chorea with acute maniacal insanity.

A fatal termination of chorea in children is practically unknown, but it may occasionally occur between the ages of fifteen and twenty-five.

Dr. Hanford¹ in thirteen years (1875-1888) had 154 cases of chorea, with 4 deaths—that is, 2.6 per cent. This number tallies very closely with the 2 per cent. of the collective investigation report of the British Medical Association² (439 cases, with 9 deaths).

The association of pregnancy or parturition with chorea gravis is more than an accidental coincidence, and such cases, more than others, add to the death-roll in chorea. But,

perhaps, of all the grave varieties maniacal chorea (chorea insaniens) is the gravest as well as the most fatal. Of 23 cases collected from various sources by William Gay, M.D.,^s complete recovery took place in 10, death occurred in 8, one was followed by permanent weakmindedness, and 4 were lost sight of, having been sent to asylums.

The duration of these cases may be very short; death occurred in my case on the ninth day; in some cases it happens as early as the sixth, or even the second day, although generally not until after some weeks. The mode of death seems to be due to the exhaustion resulting from the wild muscular movements, inanition, and want of sleep and rest. Many cases end in unconsciousness and coma, although the intellect may remain clear almost to the last—a fact first noticed by Wilks, and confirmed by subsequent observers.

Dr. Tuckwell⁴ had his attention first called, in 1861, to maniacal chorea in a woman, aged twenty-four, by Professor Trousseau. He saw a similar case in Vienna in 1862 in a pregnant woman, aged twenty; and he describes a case of a boy, aged seventeen,[†] under his own care—"probably embolic"—in 1867. All three had furious choreic movements, maniacal delirium set in early, and death ensued within ten days of the onset, after semi-coma, with partial or complete cessation of the movements. In each of these cases a mitral systolic murmur had been audible during some part of the illness, and a fringe of beads or bright warty vegetations, the size of a pin's head, was found at the mitral valve. Dr. Tuckwell analyses 34 fatal cases, recorded up to 1867, to which an autopsy was attached. In 4 the heart was healthy, in 5 no mention was made of its condition, and of the remaining 25, 20 had vegetations on the valves. He attributes the fatal results to the vegetations being set free and becoming embolic in the brain and probably also in the cord, and thus favours the theory attributed to Kirke and supported by Hughlings Jackson and Sir William Broadbent.

On the other hand, as negating the embolic theory and as bearing a close resemblance to the case of Annie O., I would refer to two fatal cases of acute chorea, with insanity,

reported by Dr. Evan Powell,⁵ Medical Superintendent, Nottingham Borough Asylum, in which there was a complete absence of valvular disease or cerebral embolism. The first was a male, aged nineteen, who had been cured of a second attack of rheumatism ten days before the chorea developed. In three days' time acute mania set in, with delusions and hallucinations and great violence, and death ensued by coma after fifteen days, during which there were lulls in the tempest; and in these quiet intervals the mind was quite clear to all that had occurred. A mitral murmur was present.

The second case was a female, aged twenty, without any history of rheumatism or heart disease. After fourteen days of chorea, insanity and hallucinations of hearing and sight set in, and it took four people to hold her in bed. She was sent to the asylum, and died in a week, but she was quite conscious, and her mind was clear up to the last two days.

The autopsy in each case was made by H. Hanford, M.D.,⁶ and the only abnormal feature present was hyperæmia of the brain. After hardening he found (a) thrombosed vessels in the anterior cornua of the cord; (b) hæmorrhages into the lymph sheaths; (c) hæmorrhages into the anterior horns, causing destruction of the nerve tissue; (d) hæmorrhages into the deep transverse fibres of the pons. He concludes that the "numerous hæmorrhages from small vessels as well as capillaries, the thromboses, and general dilatation of vessels, afford evidence of a very unusual degree of vascular engorgement of the nervous centres during life."

These cases, while they by no means conclusively prove that the pathological changes discovered in the nervous centres were the cause of the psychical disturbances, negative the theory of emboli, as there was an absence of mitral valve disease in either.

Still more recently further evidence against the embolic theory has been adduced by Drs. Poynton and Gordon Holmes in their admirable contribution to the pathology of chorea (*Lancet*, 1906). They found, on microscopical examination of three cases of fatal chorea, "very little evidence of

embolism," although great hyperæmia was present, with thrombosed vessels in all parts of the brain.

My case is practically another of the same type, as there was neither mitral valve disease nor cerebral embolism. From what I have stated, the embolic theory, as causative of chorea—be it chorea major, chorea minor (Sydenham's chorea), or the maniacal type illustrated by my case—can be no longer tenable. Rather must we recognise the difference in the severity of the choreic manifestations to be due to the presence of a toxin, and to the virulence or mildness of its action on the nerve elements of the cerebral cortex, and of the lower nervous centres. In direct proportion as the psychical and the higher centres of ideation and volition or the motor centres are those most invaded, so the symptoms each case may present will be either those of mania and other disordered mental states, or those of incoördinate muscular contractions and movements of the body and the limbs.

The intimate association of chorea and rheumatism has been long recognised, and has of late years been more and more insisted on, and the consensus of opinion of many *clinical* observers is in favour of there being one common underlying cause for each of them. It is a well-recognised fact that the first indication of rheumatic fever may be chorea, and that myocarditis, endocarditis, or pericarditis may equally occur in either.

Sir Dyce Duckworth,⁷ in his paper read before the Medical Congress at Lisbon last June, emphasised the view that chorea should be considered as "cerebral rheumatism." He has for many years consistently maintained the intimate relationship between the two diseases, and clinical experience tends, with increased authority, every year to confirm the truth of that relationship.

In 1892, Clouston,⁸ writing upon the varieties of insanity, under the heading of "Rheumatic Insanity," describes the typical case of rheumatic chorea with acute maniacal insanity, to which reference has been made above, and asks the question—"Was the rheumatism the true cause of the mental symptoms of the chorea or of both?"—and asserts his view,

from a *clinical* standpoint, that the poison of rheumatism was the true cause of the insanity.

It may be interesting to note, *en passant*, that this view is by no means a new one. It simply reasserts what was propounded in 1850 by M. Germain Sée.⁹ His expression is—"that chorea was due to the rheumatic diathesis acting on the brain and spinal cord." Trousseau,¹⁰ who quotes Sée's view, and acknowledges its probability, did his best to refute it and to prove that chorea was a purely functional derangement, similar to hydrophobia and tetanus. The ground upon which he based his theory was that no gross evidences of inflammation of the brain or its membranes are present in fatal cases of any of these diseases.

It is curious to see that now, in these latter days, the older views—based on clinical observation—have again gained ground, and that the keen and exhaustive researches of scientific minds, combined with highly skilled bacteriological dexterity and acumen, have shown that the pathological conditions of these so-called functional nervous diseases are really due to microbic infection and toxic influences. The first rays of light which illumined this difficult subject—after which so many thoughtful physicians were groping in the dark, and feeling after the truth, if possibly they might find it—was the discovery by Wassermann, in 1899, of a diplococcus which he had isolated from the cerebro-spinal fluid and inflammatory exudations of a patient who had died of acute rheumatism and chorea. With this diplococcus he had experimentally inoculated rabbits, and produced in them polyarthritis.

Drs. Poynton and Paine, in 1900, confirmed the observations of Wassermann, and found the diplococcus in a case of chorea. In 1905 they reported another case of fatal chorea, in which they demonstrated its presence. Isolating the diplococcus from the cerebro-spinal fluid they had produced by inoculation arthritis, endocarditis and pericarditis in a rabbit.

In a valuable paper (*B. M. J.*, December, 1906) Dr. Beattie accepts the theory of a bacterial origin of rheumatic fever, and deals with the objections raised against it, while he called the organism *Micrococcus rheumaticus*.

It is not my intention to follow further this most interesting branch of the subject, but would refer to the lucid and convincing contribution on the pathology of chorea which Dr. F. J. Poynton and Dr. Gordon M. Holmes published in the *Lancet*, October 13, 1906, and from which I have already freely quoted above. These observers found the diplococcus in the brain and its membranes, and also in the diseased valves of the heart, in three fatal cases of chorea and rheumatism, and they assume that the presence of micro-organisms goes far to prove that these inflammatory pathological changes are due to a toxin derived from these micro-organisms, and that chorea is caused by the action of bacterial poisons on the brain.

"The conclusions they come to, in their research on this subject, in the first place, support the clinical evidence that chorea is a manifestation of acute rheumatism; and secondly, that the demonstration of diplococci in each of their three cases is a striking confirmation of the assertion that the *Diplococcus rheumaticus* is the infective agent in acute rheumatism."

My case does not exactly add support to the views just stated, in so far as no micro-organism was discovered by Dr. O'Sullivan in his careful bacteriological examination of the brain and spinal cord. I have, however, felt it my duty to record it, as a contribution to the literature and clinical history of this most interesting subject, since it is only by the accumulated records of cases of chorea, in which a full and reliable pathological report is made by capable bacteriologists, that a sure foundation can be laid and a true pathology erected.

Brain. Vol. XII. P. 129.

* Brit. Med. Jour. Feb., 1887.

† Brain. Vol. II. P. 151.

‡ Méd. Chir. Rev. Vol. XL. 1867. P. 506.

§ Brain. Vol. XII. P. 157.

¶ Brain. Vol. XII. P. 151.

‡ Brit. Med. Jour. P. 1454. 1906.

¶ Mental Diseases. P. 485. 3rd edit. 1892.

¶ De la Chorée Memb. and l'Acad. de Med. T. XV. 1850. (Quoted by Trousseau.)

‡ Clinique Medicale. 1868. Vol. II. P. 786.

ART. XIII.—*Our Debt to Ireland in the Study of the Circulation.**

By GEORGE A. GIBSON, M.D., Sc.D., LL.D.; Physician to the Royal Infirmary, Edinburgh.

(Continued from page 260.)

IN dealing with special diseases of particular valves it is natural to begin with the aortic valve, that cardiac outpost, and here we meet one of the greatest contributions to practical medicine ever contributed by a single writer. Corrigan's celebrated paper on aortic disease was contributed to our *Edinburgh Journal*,^b and, speaking as one of its former editors, it remains one of our greatest historic possessions. In this most luminous contribution Corrigan describes the visible pulsation of the arteries, the special features of the radial pulse, and the characteristic murmurs of the disease. He emphasises the dangers of giving digitalis in aortic incompetence, a doctrine with which some of us are nowadays rather inclined to disagree, and he passes some strictures on misguided attempts to defeat nature which command our admiration.

Bellingham^c was of opinion that roughening of the aorta in default of all valvular disease could give rise both to systolic and diastolic murmurs. Barr^d published for the first time, so far as is known to me, very excellent anacrotic tracings in aortic disease, and Power^e narrated a case of the disease with atresia of the abdominal aorta and iliac arteries compensated for by enormous development of the internal mammary and epigastric arteries on both sides. It seems to be only right to point out that Law^f made some observations of real value upon the lateness or absence of dropsy in aortic disease at a compara-

* An Address delivered before the Medical Section of the Royal Academy of Medicine of Ireland, Friday, December 7, 1906.

^b *Edinburgh Medical and Surgical Journal*. 1832. Vol. XXXVII. P. 225. Further papers by Corrigan on the same subject are to be found in the *London Medical and Surgical Journal*, 1836, Vol. I., pp. 103 and 909; the *Dublin Hospital Gazette*, 1858, Vol. V., p. 1; and the *British Medical Journal*, 1861, Vol. I., p. 248.

^c *A Treatise on Diseases of the Heart*. 1857. P. 152.

^d *Dublin Journal of Medical Science*. 1876. Vol. LXII. P. 439.

^e *Ibid.* 1861. Vol. XXXII. P. 314.

^f *Ibid.* 1835. Vol. VII. P. 169.

tively early period, while the results of aortic lesions on the mitral cusps were very carefully observed by Nixon.^a

With regard to mitral disease, let me premise that in the admirable paper of Adams,^b to which full reference will afterwards be made, he anticipated much of the work which has been done later upon this subject. Excellent papers of a comparatively early period are those of Law^c and Lees.^d M'Dowel^e analysed the different forms of mitral obstruction in a skilful way. Purser^f speculated upon the production of the presystolic murmur, and expressed the view—which commends itself to but few of us—that it might be possible for such a murmur to be produced by a powerful auricle in the presence of a dilated ventricle with a normal mitral orifice. Hayden^g gives a most masterly analysis of the whole subject of mitral disease, and may be said to take rank along with Gairdner,^h Balfourⁱ and Hilton Fagge^j upon this subject.

Rupture of the chordæ tendinæ as a cause of mitral disease was very fully described by Gordon,^k and ossification of the cusps by Head.^l Two admirable studies in more recent times were made by Magee Finny.^m

^a Dublin Journal of Medical Science. 1881. Vol. LXXI. P. 101.

^b *Loc. cit.*

^c Dublin Quarterly Journal of Medical Science. 1850. Vol. IX. P. 211.

^d Dublin Hospital Gazette. 1855. Vol. II. P. 245.

^e Dublin Quarterly Journal of Medical Science. 1852. Vol. XIV. P. 352.

^f Irish Hospital Gazette. 1873 Vol. I. P. 86.

^g Dublin Quarterly Journal of Medical Science. 1865 Vol. XL. P. 417. Medical Press and Circular. 1866. Vol. I. p. 677; and Vol. II., pp. 5 and 32. Dublin Quarterly Journal of Medical Science. 1870, Vol. XLIX., p. 486; 1872, Vol. LIV., p. 61; 1873, Vol. LV., p. 309; and 1877, Vol. LXIV., p. 560.

^h Edinburgh Medical Journal, 1861, Vol. VII., p. 438; and Clinical Medicine, 1862, p. 560.

ⁱ Lancet, 1872, Vol. I., p. 704; and Clinical Lectures on Diseases of the Heart and of the Aorta, 1876, p. 101.

^j Guy's Hospital Report, 1871, Vol. XVI., p. 247; and Reynold's System of Medicine, 1877, Vol. IV., p. 601.

^k Dublin Hospital Gazette. 1854. New Series. Vol. I. P. 123.

^l Dublin Medical Press. 1865 Vol. LIII. P. 4.

^m Dublin Quarterly Journal of Medical Science, 1871, Vol. LII., p. 232; and Dublin Journal of Medical Science, 1883, Vol. LXXV., p. 179.

Affections of the tricuspid orifice owed much as regards their elucidation to the originality of Adams,^a and in the sequel this matter will be fully referred to. The safety-valve action of the cusps at the right auriculo-ventricular orifice were fully understood by this distinguished author, and they have since been frequently referred to in Irish medical annals. One paper dealing specially with this condition may be referred to in this place—*i.e.*, the contribution of Todd;^b while the article of Benson on remarkable venous pulsation^c may be taken as representative of some of the early observations on symptoms produced by inadequacy of the tricuspid valve. As regards the subject of tricuspid obstruction, as is well known, the first case of diagnosis during life, verified after death, was the celebrated instance described by Gairdner.^d An approximate diagnosis of this condition was, according to Hayden,^e made by Stokes, and his observations were followed by important contributions by Little^f and Cryan.^g The whole subject was fully reviewed by Hayden,^h and several cases were described in his systematic work. Quite recently Duffey,ⁱ whose premature decease we still mourn, described a very marked case of tricuspid, mitral and aortic obstruction.

Amongst contributions on the general condition of the cusps must be mentioned the important remarks of Marsh^j upon aneurysm of the valves—one of the earliest investigations bearing upon this subject.

^a *Loc. cit.*

^b Dublin Quarterly Journal of Medical Science. 1848. Vol. V. P. 1.

^c *Loc. cit.*

^d Clinical Medicine, 1862, p. 602; and Edinburgh Hospital Reports, 1893, Vol. I., p. 221.

^e *Vide infra.*

^f Dublin Quarterly Journal of Medical Science. *Ibid.* 1867. Vol. XLIV. P. 448.

^g *Ibid.* 1870. Vol. L. P. 453.

^h *Ibid.* 1874. Vol. LVII. P. 459.

ⁱ Transactions of the Royal Academy of Medicine of Ireland. 1901. Vol. XIX. P. 272.

^j Dublin Quarterly Journal of Medical Science. 1840.

Turning to the myocardium, it will be well, in the first place, to consider affections primarily affecting the muscular tissue of the heart, and afterwards to deal with those changes which are consecutive to other circulatory conditions. The work of Stokes^a in this direction was the earliest, as it was the most important in the United Kingdom. He gives a most graphic description of the clinical features and the pathological appearances of the myocardial changes taking place in fever. Undoubtedly a good deal has been done on this subject since the days of Stokes, but the main lines investigated and described by him remain absolutely true to the present time.

Suppurative myocarditis, which had not long before been studied by Latham^b and Craigie,^c was the subject of painstaking observations by Graves,^d who brought to that subject all the clinical insight and pathological accuracy, of both of which he was a master, as well as by Mayne,^e to whom we are indebted for some really original investigations.

Morgan^f devoted some attention to syphilitic infection of the myocardium, showing the varieties which this particular invasion might produce.

Fatty changes owe much to Dublin for their elucidation. In M'Bride's work^g, published in 1772, the condition is described. Cheyne^h called attention to the pathological conditions in fatty heart, and described the particular type of breathing, ever since associated with his name and that of Stokes,ⁱ who more closely observed it. Richardson^j and

^a Dublin Journal of Medical Science. 1839. Vol. XV. P. 1.

^b Lectures on Diseases of the Heart. 1845. Vol. II. P. 135.

^c Edinburgh Medical and Surgical Journal. 1848. Vol. LXIX. P. 86.

^d A System of Clinical Medicine. Second Edition 1864. P. 558.

^e Dublin Quarterly Journal of Medical Science. 1852. Vol. XIII. P. 460.

^f *Ibid.* 1871. Vol. LII. P. 42.

^g A Methodical Introduction to the Theory and Practice of Physic. London. P. 217.

^h Dublin Hospital Reports. 1818. Vol. II. P. 217.

ⁱ Dublin Quarterly Journal of Medical Science, 1846, Vol. I., p. 73; and Diseases of the Heart and of the Aorta, 1854, p. 324.

^j Dublin Quarterly Journal of Medical Science. 1852. Vol. XIV. P. 309.

Kennedy^a paid much attention to the fatty heart—Richardson's paper is most interesting from the historical point of view—and Quain,^b in a most masterly article, left but little to be added to the subject. In connection with it the wonderful paper by Adams,^c which has already been mentioned, described the association of extreme infrequency of the pulse with fatty heart, and this was also very fully dealt with by Stokes^d. The presence of lipæmia occupied the attention of Smith^e at an early period in the study of such changes. More recently important papers on fatty heart have been contributed by M'Dowel,^f Kidd,^g Hayden,^h Foot,ⁱ Martin,^j and Kennedy.^k

Wounds of the myocardium have occupied the attention of the Irish Schools of Medicine very frequently, and amongst the important contributions to the subject may be mentioned those of Lees.^l

Amongst the curiosities of morbid anatomy is a singular instance of gastric ulcer leading to such extensive changes as to establish a communication between the stomach and the left ventricle, which was narrated by Magee Finny.^m This extraordinary case is quite worthy of a place alongside the hepatic abscess causing pneumopericardium described by Graves,ⁿ and already mentioned.

Many valuable contributions to the study of myocardial

^a Dublin Quarterly Journal of Medical Science. 1849, Vol. XXII., p. 370; Edinburgh Medical Journal, 1859, Vol. V., p. 13; and Dublin Medical Press, 1864, Vol. LI., p. 403.

^b Medical and Chirurgical Transactions. London. 1850. Vol. XXXIII. P. 121.

^c Dublin Quarterly Journal of Medical Science. 1846. Vol. I. P. 73.

^d *Loc. cit.*

^e Dublin Journal of Medical Science. 1836. Vol. IX. P. 411.

^f Dublin Hospital Gazette. 1855. Vol. II. P. 104.

^g *Ibid.* 1856. Vol. III. P. 27.

^h Dublin Quarterly Journal of Medical Science. 1868. Vol. XLV. P. 466.

ⁱ Dublin Journal of Medical Science. 1873. Vol. LVI. P. 338.

^j *Ibid.* 1875. Vol. LIX. P. 167.

^k *Ibid.*, 1877, Vol. LXIV., p. 82; and 1880, Vol. LXIX., p. 293.

^l *Ibid.* 1837. Vol. XI. P. 169.

^m *Ibid.* 1886. Vol. LXXXI. P. 268.

ⁿ *Loc. cit.*

changes following on other lesions of the circulation have emanated from Ireland, but there cannot be a doubt that the first place, whether at home or abroad, must be accorded to the great paper of Adams.^a It is in fact the precursor of all that has been done since on the subject. The dependence of the cardiac muscle upon the coronary blood supply is most clearly enunciated, and the cause of cardiac failure is shown to rest upon changes in these nutrient arteries. The effects, moreover, of valvular lesions upon the myocardium in the production of cardiac dilatation and hypertrophy were most clearly described long before the appearance of the well-known work of Forget.^b Corrigan^c undoubtedly shares with Adams the credit for clearness of conception of these relations, and it is a pleasure to be able to point to these two observers as pioneers in this subject. To Banks^d we also owe our thanks for useful observations on hypertrophy.

Aneurysm of the heart was one of the matters discussed in the memorable paper of Adams^e already drawn upon, and the occurrence of this condition as the result of myocardial changes occupied the attention of Quain,^f of Tufnell,^g and of Bellingham.^h Spontaneous rupture of the heart is again one of the subjects described by Adams,ⁱ while Townsend^j and Bigger^k have also contributed important papers upon it.

Upon the subject of aneurysm Irish observers have produced many of the most valuable observations ever made. There is such a long list of papers as to render it somewhat difficult to group them with any attempt at systematic arrangement. Leaving out of account altogether mere records of isolated cases, important no doubt in themselves, but not adding

^a *Loc. cit.*

^b Précis théorique et pratique des Maladies du Cœur. 1851. P. 157.

^c Edinburgh Medical and Surgical Journal. *Loc. cit.*

^d Dublin Journal of Medical Science. 1863. Vol. XXXV. P. 168.

^e *Loc. cit.*

^f Transactions Pathological Society. London. 1851. Vol. III. P. 80.

^g Dublin Medical Press. 1850. Vol. XXIII. P. 321.

^h *Ibid.* 1850. Vol. XXIII. P. 323.

ⁱ *Loc. cit.*

^j Dublin Quarterly Journal of Medical Science. 1832. Vol. I. P. 164.

^k *Ibid.* 1842. Vol. XXI. P. 300.

materially to the general fund of information, and restricting attention entirely to those contributions containing original investigations and yielding distinct additions to our knowledge, there is still a formidable array of papers. Upon the subject of aneurysm in general the contributions of Graves^a and Stokes,^b as well as of MacAdam^c and Brown,^d are amongst the earliest of real importance. They were followed by the observations of Lees,^e O'Bryen^f and Bellingham.^g

As regards the clinical symptoms of aneurysm the articles of Greene^h and Lawⁱ on its painful phenomena must be mentioned as of importance, while the results of auscultation attracted the earnest attention of Stokes^j and Bellingham,^k whose work upon this subject is of the greatest value. The disease was also the subject of excellent work by Lyons^l and Hayden.^m A case of Duncan's,ⁿ in which death was due to pleural transudation without rupture of the aneurysm, is of interest. The general features of the disease were admirably described by Hayden.^o

To the clinical acuteness of Stokes^p we owe the first observation of aphonia in aneurysm produced by pressure on the recurrent laryngeal, and Banks^q followed with further

^a Dublin Hospital Reports. 1830. Vol. V. P. 6.

^b *Ibid.*, 1830, Vol. V., p. 6; and Dublin Journal of Medical Science, 1834, Vol. V., p. 400.

^c Dublin Journal of Medical Science. 1836. Vol. VIII. P. 266.

^d *Ibid.* 1836. Vol. IX. P. 240.

^e *Ibid.* 1853. Vol. XV. P. 474.

^f *Ibid.* 1843. Vol. XXIV. P. 181.

^g Dublin Medical Press. 1846. Vol. XV. P. 305.

^h Dublin Journal of Medical Science. 1835, Vol. VII., p. 231; and 1836, Vol. X., p. 341.

ⁱ *Ibid.* 1842, Vol. XXI., p. 433; and 1843, Vol. XXIV., p. 266.

^j *Ibid.* 1832, Vol. II., p. 64; 1834, Vol. V., p. 428; and many other papers.

^k Dublin Medical Press, 1848, Vol. XIX., pp. 260, 340, 355, 371 and 405; also 1849, Vol. XXI., p. 289.

^l Dublin Quarterly Journal of Medical Science. 1850. Vol. IX. P. 319.

^m Diseases of the Heart and of the Aorta. 1875. P. 1113.

ⁿ Dublin Journal of Medical Science. 1842. Vol. XXI. P. 99.

^o *Ibid.* 1869. Vol. XLVIII. P. 18.

^p *Ibid.*, 1834, Vol. V., p. 400; and Diseases of the Heart and the Aorta, 1854, p. 569.

^q Dublin Hospital Gazette. 1855. Vol. II. P. 371.

observations upon this subject. It may be said, indeed, that just as Gairdner ^a was the earliest to point out the changes in the pupil produced by the pressure of aneurysm on the sympathetic nerve, so Stokes was the first to call attention to interference with the recurrent laryngeal nerve in this condition.

The recognition of aneurysm of the abdominal aorta was inaugurated by Beatty, ^b whose paper will always remain a landmark. Observations upon this subject were afterwards made by Porter ^c; but the most important additions were made by Corrigan, ^d who called attention to the alteration of the murmur produced by change of posture, and by Seaton Reid, ^e who described symptoms produced by interference with the sympathetic nerve in abdominal aneurysm. The diagnosis of the condition was fully and ably discussed also by William Moore. ^f

Dissecting aneurysm was admirably described by Shekelton ^g in 1822, and to this day one form of the disease is very frequently associated with his name. It has received much attention at the hands of members of the Irish Schools of Medicine, notable amongst whom have been MacDonnell, ^h Magee Finny, ⁱ and Coleman. ^j MacDonnell's paper is not only enriched by references to the observations of Morgagni, ^k but is embellished by a beautiful plate. Finny's contribution has an admirable description of an extraordinary case, stretching from the thoracic aorta to the iliac arteries.

To the treatment of aneurysm the Irish schools have made

^a Monthly Journal of Medical Science, 1855, Vol. XX., p. 71; and Clinical Medicine, 1862, p. 526.

^b Dublin Hospital Reports. 1830. Vol. V. P. 166.

^c Dublin Quarterly Journal of Medical Science 1834. Vol. IV. P. 206.

^d Lancet, 1829, Vol. II., p. 1; and Dublin Journal of Medical Science, 1833, Vol. II., p. 375.

^e Dublin Hospital Gazette. 1860. Vol. VII. P. 260.

^f Dublin Journal of Medical Science. 1869. Vol. LXIX. P. 9.

^g Dublin Hospital Reports. 1822. Vol. III. P. 231.

^h Dublin Journal of Medical Science. 1845. Vol. XXVI. P. 454.

ⁱ *Ibid.* 1885. Vol. LXXX. P. 276.

^j *Ibid.* 1898. Vol. CVI. P. 125.

^k De Sedibus et Causis Morborum. 1762. Tomus I. P. 168.

notable contributions. Passing by the treatment of accessible aneurysms by compression, with which the names of Bellingham,^a O'Ferrall,^b Crampton,^c Cusack,^d Adams,^e Harrison,^f Porter,^g and Wharton will always be associated, without doing more than merely referring to the historic controversy between Dublin and Edinburgh upon this subject, in which the great protagonists were Bellingham¹ and Syme,¹ we can only deal with the management of internal aneurysm. The modern treatment of aneurysm is based beyond doubt upon the principles first enunciated by Bellingham,² whose advocacy of absolute rest and careful diet laid the foundation of our modern methods. He was followed in this after a time by Jolliffe Tufnell,¹ whose two works upon the subject have already been mentioned. It is pleasant to note that his second volume is dedicated to the memory of O'Bryen Bellingham. Many other authors followed in the footsteps of these distinguished men, amongst whom may be mentioned Hughes^m and Lyons.ⁿ The effect of treatment on the sac was the subject of an excellent paper by Colles.^o

Aneurysm of the innominate artery, terminating in a favourable result, was the subject of a very important and interesting communication by Craig^p; the effects of the disease when situated on the descending thoracic aorta were studied

^a Dublin Journal of Medical Science. 1845. Vol. XXVI. P. 243.

^b Dublin Quarterly Journal of Medical Science. 1846. Vol. II. P. 372.

^c *Ibid.* 1846. Vol. II. P. 104.

^d *Ibid.*, 1846, Vol. II., p. 104; and 1859, Vol. XXVII., p. 332.

^e *Ibid.* 1846. Vol. II. P. 104.

^f *Ibid.* 1846. Vol. II. P. 104.

^g *Ibid.* 1846. Vol. I. P. 277.

^h *Ibid.* 1875. Vol. LX. P. 504.

¹ Dublin Quarterly Journal of Medical Science. 1845. Vol. XXVII. P. 163.

² Edinburgh Medical and Surgical Journal. 1851. Vol. XIII. P. 444.

³ Dublin Medical Press. 1852. Vol. XXVII. P. 81.

¹ *Loc. cit.*, and also Dublin Journal of Medical Science. 1879. Vol. LXVII. P. 5.

^m Medical Press and Circular. 1873. Vol. XVI. P. 225.

ⁿ Irish Hospital Gazette. 1874. Vol. II. P. 47.

^o Dublin Journal of Medical Science. 1877. Vol. LXIV. P. 281.

^p *Ibid.* 1899. Vol. CVII., p. 228; and Vol. CVIII., p. 416.

by Archer^a; the last-mentioned author further described^b the diagnosis of an abdominal aneurysm by rectal examination, which had been accomplished by an American physician named Sands. The simulation of aneurysm by thoracic tumours was adequately discussed by Robert Law Nixon^c and more recently by Magee Finny.^d The relation of aneurysm to cardiac hypertrophy, and the frequent absence of any increase in the size of the heart, have been familiar to all since Stokes^e clearly enunciated the facts; he was followed by Finn,^f who afterwards dealt with the matter. The influence of aneurysm upon the aortic cusps, rendering them incompetent, was fully investigated by John W. Moore.^g Double aneurysm was discussed by Chartres,^h and aneurysm of the pulmonary artery by Bennett.ⁱ The association of aneurysm with cerebral symptoms was acutely debated by William Moore.^j

Arteritis was diligently studied by Thompson,^k whose observations are full of interest.

A very interesting case of constriction of the aorta was fully described and beautifully illustrated in early times by Robert L. Nixon.^l

One of the most striking contributions to the pathology of the arterial system is to be found in an excellent paper by Purser^m on narrowness of the aorta, associated with mitral disease, and attended by arrested sexual development. It must be mentioned that this most interesting article made its appearance almost simultaneously with the celebrated

^a Dublin Journal of Medical Science, 1880. Vol. LXIX. P. 392.

^b *Ibid.* 1878. Vol. LXVI. P. 202.

^c *Ibid.* 1834. Vol. V. P. 386.

^d *Ibid.* 1877. Vol. LXIII. P. 328.

^e Diseases of the Heart and the Aorta. 1854. P. 615.

Dublin Journal of Medical Science. 1860. Vol. XXIX. P. 474.

^f *Ibid.* 1882. Vol. LXXIII. P. 154.

^h *Ibid.* 1871. Vol. LII. P. 36.

ⁱ *Ibid.* 1872. Vol. LIII. P. 348.

^j *Ibid.* 1868. Vol. XLV. P. 323.

^k *Ibid.* 1860. Vol. XXX. P. 33.

^l Dublin Quarterly Journal of Medical Science. 1834. Vol. V. P. 386.

^m Dublin Journal of Medical Science. 1873. Vol. LVI. P. 466.

paper by Virchow on hypoplasia of the aorta and arterial system.^a

Arterial obstruction, leading to paralysis from interference with the blood supply was recorded by Graves and Stokes,^b and these authors may, in respect of this subject, be regarded as supporters of the views of Allan Burns^c and precursors of Charcot^d upon the interdependence of the blood supply and nervous energy.

An early paper by Davis in the Hospital Reports^e gives an excellent account of abnormal movements of the veins, and describes a direct venous current distinctly visible and carried on from the capillaries towards the heart. Graves,^f a few years afterwards, fully described this interesting phenomenon. It is an open question whether Benson,^g in an excellent communication upon venous pulsation, really refers to this or to the much more common retrograde venous pulse. The whole subject of direct venous pulsation was fully reviewed by Smith,^h who believes that Benson really described the direct venous pulse.

The venous hum, or *bruit de diable*, was fully discussed by Bellingham,ⁱ whose views were rather too mechanical, as he considered it was produced by the pressure of the stethoscope, ignoring or overlooking the fact that it can be heard over the inner end of the clavicle where no pressure can be exerted on the vein.

With further reference to the veins, a want of relation between the movements of the cervical veins and the arterial

^aUeber die Chlorose und die damit zusammenhängenden Anomalien im Gefäßapparate. Berlin. 1872.

^bDublin Hospital Reports. 1830. Vol. V. P. 1.

^cObservations on some of the most frequent and important Diseases of the Heart. 1809. P. 138.

^dGazette méd. de Paris. 1859. Sér. 3. Tome XIV. P. 282.

^eDublin Hospital Reports. 1827. Vol. IV. P. 272.

^fDublin Journal of Medical Science. 1835. Vol. VI. P. 54.

^g*Ibid.* 1836. Vol. IX. P. 324.

^h*Ibid.* 1881. Vol. LXXI. P. 109.

ⁱDublin Medical Press. 1848. Vol. XIX. P. 113.

system did not escape the acute observation of Stokes,^a as will be more thoroughly shown in the sequel.

With the very shadowy exception of Flajani,^b but the unquestionable exception of Parry,^c there cannot be any doubt that the now well-known condition of exophthalmic goitre was first observed by Graves,^d and it is to be hoped that his name will always be associated with the affection, except in Teutonic countries where medical Chauvinism is unfortunately rampant. The original observation of Graves was made in 1835, and was incorporated in the first edition of his "Clinical Lectures." There cannot be a doubt of the vivid accuracy of his description, and it proves how keen was his clinical insight. The first account of the morbid anatomy of this affection is due to Marsh,^e and various points in the clinical features of the condition were emphasised by MacDonnell^f and Stokes^g; while more recently Swanzy,^h Foot,ⁱ and William Moore^j have made interesting additions to our knowledge.

As regards questions of treatment of heart disease in general, the Irish annals have provided numerous admirable examples of careful observation and thorough investigation. It is almost invidious to single out any individual contributions from amongst the mass of able and valuable work, but there are a few which stand out prominently. Amongst these let me refer briefly to an excellent discussion of mechanical methods in the treatment of dropsy by Marsh,^k an interesting

^a *Diseases of the Heart and the Aorta.* 1854. P. 315.

^b *Collezione d'osservazioni e riflessioni di Chirurgia.* 1880. Tomo III. P. 270.

^c *Collections from the unpublished Medical Writings of Caleb Hilliard Parry.* 1825. P. 111.

^d The original description was given in a Clinical Lecture, delivered in 1835, at the Meath Hospital; *A System of Clinical Medicine*, 1843, p. 674. See also the *London Medical and Surgical Journal*, 1835. Vol. II. (Vol. VII. of the Series), P. 516.

^e *Dublin Journal of Medical Science.* 1842. Vol. XX. P. 471.

^f *Ibid.* 1845. Vol. XXVII. P. 200.

^g *Diseases of the Heart and the Aorta.* 1854. P. 278.

^h *Irish Hospital Gazette.* 1873. Vol. I. P. 258.

ⁱ *Ibid.* 1874. Vol. II., p. 179; and *Dublin Journal of Medical Science*, 1880; Vol. LXX., p. 452.

^j *Dublin Quarterly Journal of Medical Science.* 1865. Vol. XL. P. 344.

^k *Ibid.* 1853. Vol. XVI. P. 1.

contribution on rest in the treatment of disease and especially of circulatory affections by Magee Finny,^a and another paper, at once eloquent and learned, on exercise in the treatment of heart disease by MacCormac.^b The Nauheim treatment of circulatory affections does not seem to have caused any particular flutter in Ireland, thanks, probably, to the influence of that great master Stokes in keeping Irish physicians alive to the utility of graduating rest and exercise. There is, however, one interesting paper on the methods of Nauheim in recent years by Smyly, in which the author fully considers all the questions involved in these methods.

(To be concluded.)

ART. XIV.—*Note on the Detection of Organic Poisons in Animal Matter.* By MARIUS ESPOSITO.

THE detection of vegetable and animal poisons in food and decaying organic matter has long been one of the most important problems of toxicology. The earliest experiments in this direction were made during the first half of last century by Orfila,^c Christison,^d Buchner, Lassaigne, Dublanc, and Devergie.^e

The methods proposed by these authors, all more or less analogous, consisted in treating the suspected matter with acetic acid or alcohol, filtering, evaporating to a small bulk, taking up the extract with pure or acidified water, decolorising with animal charcoal or precipitating the organic matter with acetate of lead, sulphuretted hydrogen, silver nitrate, alcohol, gelatin or tannin, and trying the effect of various reagents on the final extract thus obtained.

It was pointed out by Christison and Buchner that these methods would give only very uncertain results, even in cases where considerable quantities of alkaloids had certainly

^a Dublin Journal of Medical Science. 1874. Vol. LVII. P. 108.

^b *Ibid.* 1874. Vol. LVIII. P. 83.

^c *Ibid.* 1894. Vol. XCVIII. P. 185.

^d *Traité de Toxicologie.* T. II. P. 257. Édit de 1843.

On Poisons. P. 694. Ed. of 1845.

^e *Médecine Légale.* T. III. P. 678. Édit. de 1852.

been administered. In fact, as was afterwards shown by Stas,^a methods depending on the use of salts of lead or of organic substances to precipitate organic matter are objectionable, as they either transform the alkaloid present into some other substance or eliminate it along with the animal matter.

The views of Buchner and Christison were attacked by Orfila, who claimed to have discovered many of the alkaloids in suspected matter by his process, and who, in one case, actually characterised strychnin by a reaction which is not due to that substance.^b Rarely has a more severe criticism been passed by a competent authority upon any scientific work than that of Stas on the analytical methods of Orfila. In the words of the great Belgian chemist^c—"Je ne connais aucune recherche chimique que l'on puisse comparer à celle-là. En effet, M. Orfila reconnaît et constate la présence de la strychnine par un caractère que cet alcaloïde n'offre pas . . . Que notre confrère ne s'y méprenne pas ; en agissant de la sorte, on produit des œuvres qui ne restent même pas le temps qu'il a fallu pour les faire." Further on, discussing Orfila's process for the detection of nicotine,^d Stas continues :—

"Dans les annales des sciences il n'existe aucune analyse qui surpasse celle-ci en fautes commises, . . . M. Orfila a dissous de la matière organique, quand il devait tout faire pour l'éliminer ; par évaporation, il a perdu la nicotine qu'il devait retenir, et plus que tout cela, il a altéré celle qui pouvait encore rester ; enfin il a pu produire des alcaloïdes qui n'existaient pas. On peut juger, d'après cet exemple, de l'habitude analytique de M. Orfila, et de la confiance que peuvent inspirer ses travaux chimiques."

In 1853 Ch. Flandin^e published a brief account of a new

^a Cf. his *Recherches médico-légales sur la nicotine, &c.* Bruxelles. 1852.

^b *Traité de Toxicologie.* T. II. 1843. P. 456.

^c *Recherches médico-légales.* P. 105.

^d *Annales d'Hygiène.* T. 46. P. 162. Juillet, 1851.

^e Nouvelle méthode d'analyse pour la recherche des poisons organiques. (*Comptes Rendus*, 36, 517.)

method for the detection of alkaloids in animal matter. Hearing, however, that Stas was working on the same subject he discontinued his experiments, and his process is now practically forgotten. The principles of the method are described by Flandin as follows^a:—"Albuminous matter heated to 100° is rendered insoluble; colouring matter, fats and resins treated with caustic lime or anhydrous baryta are transformed into insoluble compounds. Suppose, then, a mixture of animal matters from which it is necessary to extract some alkaloid, morphine, strychnine, brucine, for example; suppose that this alkaloid is not attached at 100° by lime or baryta, and the greater number of alkaloids are not, then it ought to be possible by drying the matter in presence of lime or baryta to render the greater part of the organic matter colourless and insoluble. Some appropriate solvent will then take up the alkaloid from the finely-powdered matter."

The practical application of these principles to the detection of morphin next follows^b:—

"The matter is dried at a temperature not above 100° in contact with pure anhydrous lime. The proportion of lime to organic matter is 12 per cent. The matter is finely powdered and again exposed to a temperature of 100° to remove the last traces of water. Absolute alcohol is poured on the fine dry powder, and after boiling is decanted off and filtered. This operation is repeated three times. On cooling, a precipitate of fatty matter separates out from the alcohol, which is removed by filtration through the filter already employed. The faintly coloured liquid thus obtained is evaporated or distilled, and the dry residue is treated two or three times with ether, which removes the animal fats without dissolving the morphin. The latter is then easily identified."

In this manner Flandin was able to separate a very appreciable quantity of morphin from 100 grams of flesh,

^a *Traité des Poisons*. T. III. Paris. 1853. Pp. 129-130. *Comptes Rendus*. T. 36. 1853. Pp. 517-521.

^b *Traité des Poisons*. T. III. Pp. 214-215.

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which had been allowed to putrefy with 2 centigrams of the alkaloid for two months^a. In order to test the value of this method I made a number of experiments with morphin, in which quantities of the alkaloid varying from 2.5 to 1.5 centigrams were added to from 64 to 42 grams of putrefying organic matter. After allowing the mixture to stand for three or four days longer I was able in each case, by operating exactly as described above, to isolate a small quantity of brilliant colourless crystals, which gave perfectly all the reactions characteristic of morphin.

By following this process Flandin has also detected strychnin and cantharidin in animal matter.^b

Other work has prevented me from continuing my experiments on Flandin's method, but I believe that if it were carefully worked out, in view of its simplicity and rapidity, it might render important services to toxicology.

^a Flandin. *Loc. cit.* P. 217.

^b *Traité des Poisons.* T. III. 1853. Pp. 255, 643.

THE ACTION OF SODIUM SULPHATE.

DR. MABERLY, in the *Lancet*, claims for sodium sulphate the action of a true intestinal antiseptic. Experiments with the drug in infantile diarrhœa led to the discovery that by reducing the dose sufficiently to avoid any aperient action, the symptoms of the complaint gradually disappeared. Since obtaining these results he has gradually relied more and more on sodium sulphate, and is convinced that in proper doses the drug is a true bowel antiseptic, independently of its aperient action, and further, in order to obtain this antiseptic action, aperient doses must be avoided. The dose should commence with six grains for an infant under six months, increasing up to one drachm in the case of an adult, given every six hours in a flavoured water. Dr. Maberly has also had good results in typhoid fever. He quotes Hay's researches on the action and splitting up in the system of saline cathartics as a probable explanation of this effect.—*The Prescriber*, January, 1907.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Integrative Action of the Nervous System. By CHARLES S. SHERRINGTON, D.Sc., M.D., Hon. LL.D. Tor., F.R.S.; Holt Professor of Physiology in the University of Liverpool; Honorary Member of the American Physiological Society, &c. With Illustrations. London: Archibald Constable & Co., Ltd. 1906. Pp. xvi + 411.

THE special interest attached to the questions discussed in this volume is foreshadowed on its title-page, and is fully maintained down to the close of the list of Bibliographical References. The text represents the second of the series of the "Mrs. Hepsa Ely Silliman Memorial Lectures." These were delivered at the Yale College, New Haven, in accordance with the provisions of the "Silliman Foundation." This foundation in itself represents a brilliant example of a combination of the inspiring national enthusiasm and devoted filial affection which the higher-class children of the great Western Republic are so often found to display. It also forms a permanent monument of human aspirations after things above—after the infinite and the eternal, the hitherto unknowable and still apparently undiscoverable. It expresses the unquenchable hope which springs eternal in the human breast, inspired by the conviction that erring and suffering humanity, apparently exiled for a life-time on the surface of an ill-regulated planet, is nevertheless the special care of a benevolent Supreme Power, whose wisdom and goodness are but irregularly foreshadowed here, but will hereafter shine forth with a dazzling and unsullied radiance throughout the limitless ages of eternity. The Silliman Foundation also forms an unmistakeable index

of the survival of the spiritual and emotional elements of human nature in a densely-grown forest of gross materialism and scoffing scepticism. And its provisions offer a specially gratifying aspect to the earnest scientific seeker after elusive truth. It was the belief of the testator that any orderly presentation of the facts of nature or history contributed to the end of this foundation more effectively than any attempt to emphasise the elements of doctrine or of creed. He therefore provided that lectures on dogmatic or polemical theology should be excluded from the scope of this foundation, and that the subjects should be selected rather from the domains of natural science and history, "giving special prominence to astronomy, chemistry, geology, and anatomy." As the object of the foundation was "to establish an annual course of lectures designed to illustrate the presence and providence, the wisdom and goodness of God, as manifested in the natural and moral world," all thinking readers who happen to possess even a very superficial degree of acquaintance with the most illuminating foci of the scientific thought of the present age will surely admit that the subjects were well chosen by the testator. And the Mother Country must feel the compliment of having the first and second lecturers chosen from among her own leaders of thought. The first series of Silliman Memorial Lectures were delivered by Professor J. J. Thomson, of the University of Cambridge. All medical men should feel proud of the fact that the distinguished Liverpool physiologist was chosen to follow next in order.

Professor Sherrington's lectures deal with a subject of most engrossing interest to all members of the human race, and on which he is well known to be one of the highest living authorities; and they not merely represent the previous high-water level of attainment regarding the functions of the nervous system in man and his contemporaries in the various strata of animal life, but display an originality of view and a width of comprehension which may be said to be all his own. Of the ten lectures which form the series contained in the volume now before us, the first three are devoted to "Co-ordination in the

Simple Reflex"—starting from the cell, and extending to the most complex form of its mechanism: "with the progress of natural knowledge, biology has passed beyond the confines of the study of merely visible form, and is turning more and more to the subtler and deeper sciences that are branches of energetics. The all-theory and the doctrine of evolution find their scope more and more, therefore, in the problems of function, and have become more and more identified with the aims and incorporated among the methods of physiology." This broadly luminous view pervades the whole of Professor Sherrington's text. Lecture IV. is devoted to an exposition of "Interaction between Reflexes"; V. and VI. to "Compound Reflexes"—simultaneous combination and successive combination, respectively; VII. to "Reflexes as adapted Reaction"; VIII. deals with "Some Aspects of the Reactions of the Motor Cortex"; IX. with "The Physiological Position and Dominance of the Brain"; and X. with "Sensual Fusion." In the course of these lectures the author bases his reasonings on the structure of a "dummy" animal, which, to quote his own words: "We have supposed merely a puppet moved by the external world in which it is immersed; and we have supposed it a puppet without passions, memory, feelings, sensations, let alone ideas concrete or abstract." Everyone who has had much experience of teaching in the more abstruse departments of physiological science must admit that the method adopted by Professor Sherrington is almost the only one which could well be chosen—at least, with a reasonable hope of maintaining a luminous pathway throughout for the footsteps of his inquiring reader. The objection may, of course, be raised that it presents the inevitable defect of materialistic doctrine: that of the adaptation of the various forms of inanimate—soulless—matter to the functions of *living* body, and the theoretical diminution of the influence of the passions, sensations, &c., in the investigation of the nutrition and functional activity of the organs of the animal economy; and, more especially, in a consideration of the labyrinthine phenomena associated with the brain and nervous

system of *Homo sapiens*. But we have found Professor Sherrington's pages so instructive and satisfying in most directions that we cannot entertain any depreciative criticism—we would not even listen to such from anybody else. To attempt a detailed examination of the contents of these lectures would be mere vain presumption; so that we will simply bring our notice to a close by recommending this volume to the notice of every earnest inquirer within the ranks of our profession.

*SOME SHORT WORKS ON OBSTETRICAL AND
GYNÆCOLOGICAL SUBJECTS.*

1. *Uterine Fibroids and Other Pelvic Tumours.* By BEDFORD FENWICK, M.D.; Gynæcologist to the Hospital for Women, Soho Square. London: E. H. Blakely. Pp. 75.
2. *The Operative Treatment of Prolapse and Retroversion of the Uterus.* By J. INGLIS PARSONS, M.D., M.R.C.P. & S.; Physician to the Chelsea Hospital for Women. London: John Bale and Danielsson. 1906. Pp. viii. 90.
3. *Oliver Wendell Holmes and the Contagiousness of Puerperal Fever.* An Address delivered by CHARLES J. CULLINGWORTH, M.D., F.R.C.P.; Consulting Obstetric Physician to St. Thomas's Hospital. London: H. J. Glaisher. 1906. Pp. 41.

1. DR. BEDFORD FENWICK reproduces in book form a number of interesting papers which have been published during the last twenty years in various London journals. They deal with such subjects as fibro-myomata of the uterus, the connection between pulmonary phthisis and ovarian disease, and intra-abdominal tumours as a cause of cardiac degeneration, and end with a description of four years' hospital abdominal surgery. All the papers are interesting and will well repay perusal.

2. IN his little book Dr. Inglis Parsons lays before his

readers a short description of the methods of treating prolapse and retroversion of the uterus, which he has found of most value during twenty years' work on the staff of a special hospital for women. The principal point of interest is the description of the method of treating prolapse with which the author's name is associated—namely, by the injection of a solution of quinine into the bases of the broad ligaments. After describing the principles of his method, Dr. Parsons gives a table of 105 cases on which he has operated in this manner. From this table it appears that in the large majority of cases the result was "good," or "very good," and that one patient even "recovered the use of her eyes." One patient died three weeks after the operation from uræmia. It would be interesting to know whether or not Dr. Parsons attributes such uræmia to pressure on the lower ends of the ureters.

We have never performed the operation recommended by Dr. Parsons or seen it performed, and, therefore, it is, perhaps, not fair to express an opinion on its merits. Personally, however, we are inclined to think that it is an unsurgical proceeding, and that on this account we prefer the other and more usual operations adopted in these cases.

In discussing backward displacements of the uterus Dr. Parsons recommends the use of the sound for their replacement, and he does not even mention Schultze's method of bimanual reposition. This does not appear to us to be right.

3. DR. CULLINGWORTH'S Address on "Oliver Wendell Holmes and the Contagiousness of Puerperal Fever" is well worthy of re-publication in book form. Originally delivered before the Bath and Bristol Branch of the British Medical Association in 1905, it was written to call attention to an essay published in the *New England Quarterly Journal of Medicine and Surgery* for April, 1843, under the title of "The Contagiousness of Puerperal Fever," and to support Oliver Wendell Holmes' claim to an honourable place amongst those who cried aloud the

doctrine of the infectivity of puerperal fever. It is a most interesting little work, and, written in Dr. Cullingworth's usual delightful style, cannot fail to both please and instruct its readers.

The Practical Medicine Series. Comprising ten volumes on the Year's Progress in Medicine and Surgery, under the general editorial charge of GUSTAVUS P. HEAD, M.D.; Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume II. General Surgery. Edited by JOHN B. MURPHY, A.M., M.D., LL.D.; Professor of Surgery in Rush Medical College (in affiliation with the University of Chicago). Series 1906. Chicago: The Year-Book Publishers. Pp. 583.

If the volume before us is an example of the standard of excellence of the remaining volumes comprising the "Practical Medicine Series for the Year 1906," we can, without doubt, predict for this undertaking an unqualified success.

The name of the editor of this volume is sufficient guarantee for its merit. The plan followed is the reproduction, on a more extensive scale than has hitherto been the custom in year-books, of articles written by acknowledged authorities in America, Great Britain, and on the Continent. As one would naturally expect, the surgery of the abdominal organs occupies a very considerable space; still, no region of general surgery is neglected. Extended review is quite unnecessary. Suffice it to say that we were agreeably astonished to find so much information nicely arranged and judiciously selected from the journalistic literature of—we might say—the entire surgical world. Yet, withal, the volume is handy and of extremely convenient size for the busy practitioner or surgeon to read over in his carriage on his daily rounds.

We strongly recommend the volume to every surgeon and general practitioner who wishes to keep his know-

ledge abreast of the advances of modern surgery. To the busy man the volume is indispensable. The sole agents for the British Isles are Messrs. G. Gillies & Co., Medical Booksellers and Instrument Makers, 28 Gibson Street, Glasgow.

Cancer of the Breast and its Operative Treatment. By W. SAMPSON HANDLEY, Hunterian Professor of Surgery and Pathology in the Royal College of Surgeons, England; Assistant Surgeon to the Middlesex Hospital; late Surgeon to Out-patients' Samaritan Free Hospital. London: John Murray. 1906. Pp. xii + 232.

THE object with which the book is written is that of attempting to place the operative treatment of cancer of the breast upon a more complete rational basis. The author embodies in this work the results of his investigations into the dissemination of breast cancer in the Cancer Research Laboratories of the Middlesex Hospital during the past three years. His account of "The Parietal Dissemination of Mammary Cancer" is a supplemental reproduction of his papers on this subject published in the third and fourth volumes of the "Archives of the Middlesex Hospital."

Mr. Handley shows pretty conclusively that the hitherto accepted views of cancerous dissemination, according to which metastases arose from lodgment here and there of cancerous particles swept along the blood-vessels or lymphatic vessels, are in the main erroneous. Dissemination is accomplished by a slower process—viz., by actual growth of cancer cells along the finer vessels of the lymphatic plexuses. Schmidt and Goldmann, in their work, showed that cancerous cells, on gaining entrance into the blood-stream, incite thrombosis, and the thrombus, as it organises and contracts, destroys them, or, at all events, renders them harmless. This fact is strongly opposed to the embolic theory.

The author describes the growth of cancer cells along the lymph vessels or plexuses as "permeation," and

shows that it takes place just as readily against the lymph stream as with it. He describes its spread along the lymph vessels around the primary growth as occurring in much the same way as would a thick injection fluid introduced into the tissues by a syringe. The spread is centrifugal, the primary growth always being the centre. This is manifested by the distribution of the subcutaneous secondary nodules which are so frequently seen in the later stages of breast cancer.

Great stress is laid upon this centrifugal spread towards the epigastric angle—this being the path along which infection of the abdominal cavity takes place in the large proportion of cases. This centrifugal “permeation” is considered separately in (1) the skin and subcutaneous fat, (2) the deep fascia, (3) the bones. As an indication of this centrifugal spread one of the chief points upon which stress is laid is the absolute immunity of the distal portions of the limbs—that is, the parts distal to the elbow and knee.

The weightiest argument against blood-infection as a cause of bone deposits lies in the entire escape from metastases of the tibia and fibula, the radius and ulna, and the bones of the hands and foot—bones which are as liable to secondary deposits, if not more so, on account of their nearness to the periphery of the circulation, as the femur or humerus.

Chapter V. is devoted to visceral dissemination and a microscopic study of epigastric invasion of the abdomen.

In Chapter VI. will be found a statistical study of epigastric invasion, while in Chapter VII. the retroperitoneal and diaphragenic invasions are described, as well as the invasion of the thorax and cranial cavity. The last two chapters are devoted to the principles of the operation for breast cancer and the description of the author's method.

An appendix of some 20 pages on lymphatic permeation as a factor in the dissemination of melanotic sarcoma, with a note on operative treatment, concludes a volume which is of surpassing interest, and which

we can recommend for careful study to every surgeon interested in the subject of breast cancer—and what general surgeon is not so interested?

The Illustrated Medical Dictionary. By W. A. NEWMAN DORLAND, A.M., M.D. Fourth Edition, Revised and Enlarged. London and Philadelphia: W. B. Saunders Company. 1906. 8vo. Pp. 836.

THE popularity of this work is proved by the publication of a new edition every two or three years and by frequent reprints in the intervals. The third edition appeared in July, 1903, and was reprinted in January and again in October, 1904, and in August and again in November, 1905. The present edition was revised, reprinted, and re-copyrighted in July, 1906.

The present volume includes definitions of more than 2,000 new words. Six new coloured plates have been introduced, illustrating appendicitis (from drawings by Dr. M. H. Richardson), diphtheria of the lips and pharynx, gallstones or biliary calculi (after Moynihan), Leishman-Donovan bodies (copied from the original plate of Major Donovan, by permission of the proprietors of the *Lancet*), measles (showing "Koplik's spots" and the appearance of the palate, rather than of the throat, in this disease), and nephritis (from Rosenstein's *Pathologie und Therapie der Nieren-Krankheiten*)—the last not very successful from an artistic point of view.

"Opsonic" and "Opsonin" are among the new terms which find a place in the Dictionary. The derivation of these words is from the Greek verb *ὀψώνειν*, not *ὀψόνειν*, as printed at page 505.

Can we not induce Dr. Dorland to correct the periods of incubation given in the Table of the Exanthemata at pages 272 and 273? It is ridiculous to assign three to five days as the incubation of measles and one to twenty-one days as that of scarlatina. Measles almost invariably declares itself in ten days from the time of infection; scarlatina, we venture to say with Murchison, seldom if

ever has a longer incubation than seven days. This is the "third time of asking."

Golden Rules of Medical Evidence. By STANLEY B. ATKINSON, M.A., M.B., B.Sc., of the Inner Temple, Barrister-at-Law; a Justice of the Peace for the County of London; Hon. Sec. of the Medico-Legal Society (London). "Golden Rules" Series. No. XVI. Bristol: John Wright & Co. (No date). Pp. 63.

THIS little "pocket-book" gives in the shortest space much information about medical evidence—especially of the kind called for in Coroners' Courts. Mr. Stanley Atkinson is well qualified to write on its subject-matter, since he is a member of the medical profession and also a barrister. The "Golden Rules" are clearly set forth, and will be found useful by all medical witnesses.

Clinical Lectures on Enlargement of the Prostate, with a description of the Author's operation of Total Enucleation of the Organ. By P. J. FREYER, M.A., M.D., M.Ch.; Surgeon to King Edward VII.'s Hospital for Officers and to St. Peter's Hospital; late Examiner in Surgery at the Durham University; Lieut.-Colonel Indian Medical Service (Retd.). Third Edition. London: Baillière, Tindall & Cox. 1906. Pp. 154.

THE volume before us differs from the second edition in that it is devoted entirely to enlargement of the prostate—stricture of the urethra and its treatment having been omitted. Many additional cases illustrative of the author's method of enucleation are described and serve very materially to increase the size of the book. A lecture is also included on developments of the author's operation involving partial or total removal of the prostatic urethra, and the after-treatment of prostatectomy. Lectures on the scope and limits of the operation of total enucleation of the prostate, on total enucleation of the

prostate in advanced old age, and on the results of the operation, conclude the book.

From every point of view the subject is treated in an eminently satisfactory manner. There can be no question but that Mr. Freyer has done much to place the surgery of enlargement of the prostate upon the satisfactory footing it at present occupies, and we heartily congratulate him upon the success his work has met with.

Elements of Practical Medicine. By ALFRED H. CARTER, M.D., M.Sc.; Fellow of the Royal College of Physicians, London; Professor of Medicine, University of Birmingham; Senior Physician to the Queen's Hospital, Birmingham; Emeritus Professor of Physiology, Queen's College, Birmingham; Consulting Physician to the Corbett Hospital, Stourbridge, the Bromsgrove Hospital, the Smallwood Hospital, Redditch, and Guest Hospital, Dudley, &c. Ninth Edition. London: H. K. Lewis. 1906. Crown 8vo. Pp. xvi + 614.

THE phenomenal success of Dr. Carter's manual has proceeded, ever since its first appearance, with a velocity of current which has quite swept it out of the range of ordinary journalistic criticism. The author has secured the best attention of his public; and, accordingly, can well afford, as he chooses, to ignore or despise the opinions of the officious reviewer. And we, for our own part, feel that we are strictly limited in the exercise of our functional duties to congratulating the writer on the continuously increasing success of his "*Elements*"—while assuring the reader who has not yet made the acquaintance of this text-book that its unrivalled success in its own generation has been based on its intrinsic merits, and that Dr. Carter has not neglected to make the present issue worthy of the confidence which has hitherto been reposed in him by bringing its special sections fully abreast of the advancing tide of progressive medicine.

PART III.

SPECIAL REPORTS.

REPORT ON MEDICINE.

By T. GILLMAN MOORHEAD, M.D., Univ. Dubl., F.R.C.P.I. ;
Physician to the Royal City of Dublin Hospital.

PROFUSE HÆMATURIA IN NEPHRITIS ACCOMPANIED BY COLICKY PAIN.

THAT severe hæmaturia is to be expected after trauma to the kidney, and in cases of renal tumour, tuberculosis or lithiasis, is universally admitted, but that it may also occur as a result of less gross changes in the kidney is not so commonly known. Askanazy (*Zeits. f. klin. Med.* Bd. 58. H. 5 u. 6) now brings forward evidence to prove that severe hæmorrhage may occur during the course of chronic nephritis, both interstitial and parenchymatous. He has collected eleven cases from the Königsberg Clinic, some of which were verified by autopsy, in which sudden hæmorrhages accompanied by crises of pain occurred at intervals. The pain was of a colicky nature, and shot from the kidney region to the bladder and thighs, often lasting an hour or more, while the hæmorrhage occasionally persisted for several hours or even days. Sometimes slight fever accompanied the pain, but the quantity of urine remained unaltered, and there were no severe constitutional or uræmic symptoms. Some of these cases were operated on and capsulotomy performed, with subsequent relief. The author believes that both the pain and the hæmorrhage are due to recurrent acute congestion of the kidneys, causing distension of the capsule and compression of the kidney substance.

MARMOREK'S TUBERCULOSIS SERUM.

Dr. Charles Monod contributes to *La Revue Internationale de la Tuberculose* (March, 1907, p. 172) an important paper on

Marmorek's anti-tubercular serum. He has collected and analysed the various publications that have been made concerning the therapeutic value of the serum since its first introduction, and finds that out of a total of 43 papers 38 pronounced in favour of the method and 5 against. Of the latter, three regarded the serum as simply non-efficacious, while two stated that it was harmful. The 39 favourable papers contain a report of 592 cases, all of which were benefited to some extent by the serum, and none of which showed any ill effects other than transient urticaria and other skin affections. The writer draws the following important conclusions from his study :—(1) The use of Marmorek's anti-tubercular serum is unattended with any danger. (2) It is useful in all forms of tuberculosis, and seems to be especially useful in surgical tuberculosis. (3) In pulmonary phthisis amelioration of symptoms may be expected, but hardly a complete cure. (4) The serum may be given subcutaneously or per rectum.

EXPERIMENTAL PRODUCTION OF RENAL TUBERCULOSIS. ¶

Mons. Bernard and Salomon report an important experimental investigation on the production of renal tuberculosis (*Revue Internat. de la Tuberculose*. March, 1907, p. 204. Abs.) Hitherto it has been widely held that chronic tuberculosis of the kidney, as distinct from miliary tuberculosis, was almost invariably due to spreading from below, but many have adhered to the view that blood infection was possible. The present writers have proved the last-named possibility by bringing about a blood infection in rabbits, after tying the ureter. The bacilli excreted by the kidney, which they reach by the blood stream, set up a tubercular process. The characters of the process vary somewhat with the number and virulence of the bacilli present, but, as a rule, a tubercular pyonephrosis is set up, and the walls bounding the cavity are found infiltrated with tubercular granulation tissue. The opposite kidney, the ureter of which is still pervious, may remain healthy, but in a few cases it was found to contain small tubercular nodules, or to show compensatory hypertrophy.

THE INJECTION TREATMENT OF SCIATICA.

Alexander writes upon this subject, and points out that almost all writers are agreed that good results are obtained by the method, and that in many cases a permanent cure of old standing cases may be obtained after a single injection (*Zeitsc. für diät. u. physikal. Therapie.* Bd. X. H. 4). The technique consists in first raising a small anæsthetic subcutaneous wheal over the course of the nerve by the injection of a one per cent. eucaïn solution in normal saline. The patient is then warned not to move, and the needle is driven through the wheal for a depth of from 7 to 7½ cm. directly into the sciatic nerve, and the injection is made. The result is that a painless and efficacious stretching of the sciatic nerve is brought about, such as would be only possible in the usual bloodless method, at the cost of great pain. As compared with treatment by intraspinal injections, the writer points out that the above-described method is absolutely safe, and that even eucaïn need not be employed, as the salt solution will act by itself. The treatment can be employed for other painful affections, as, for example, intercostal neuralgia. In this condition large subcutaneous injections of from 70 to 100 c.cs are made subcutaneously, at the tender points, and thus a mechanical stretching of the nerves is brought about.

SPONTANEOUS RUPTURE OF THE AORTA.

Rupture of the aorta may occur as a result of wounds of that vessel, from contusions of the thorax, or from the spread of intrathoracic abscesses and tumours, and also, of course, from aneurysmal dilatations. Apart from all these causes, however, according to Bergé (*Gaz. des Hôp.* 1906. No. 38), spontaneous rupture may take place and is far from uncommon. It is met with twice as often in men as in women, and its most frequent precursor is atheroma of the vessel wall, though in some cases it has resulted from acute aortitis. In three-fourths of the recorded cases the rupture has been in the intrapericardial part of the vessel, and often it has occurred in two stages—i.e., in the first place the blood has been effused between the internal and middle coat, and later it has pene-

trated the outer coat. Two symptoms are fairly constant—namely, sudden pericardial pain and heart failure. Death may occur immediately, gradually—that is, within a quarter of an hour, or, more frequently, death is delayed for some hours, owing to the formation of a dissecting aneurysm. Clinically the cases have most often been mistaken for angina pectoris.

EFFECT OF TESTICULAR EXTRACTS UPON GROWTH.

Anul and Bonin (*Compt. Rend.* 1906. T. 142. No. 5) have made some observations on the effect of testicular extracts on general metabolism as shown by their influence on the growth of young animals. Twelve guinea pigs were taken, and eight of these were castrated. Four of these were then subjected to injections of testicular substance made subcutaneously every second day. All the twelve animals were kept under exactly similar conditions as regards light, food supply, and surroundings. About the mid-period of growth it was found that the normal four guinea pigs had increased on an average 320 grammes in weight; the castrated ones that had not received injections had increased about 266 grammes in weight; and those that had both been operated on and received injections averaged an increase of 300 grammes. From this the authors conclude that the testes have a powerful influence upon growth, and that injections of testicular extract may partially compensate for removal of the organs themselves. At a later stage of development the castrated animals develop rapidly, but their increase in size and weight is due to a fatty deposit rather than to muscular increase.

MUSCULAR CIRRHOSIS OF THE LUNGS.

The term cirrhosis is now applied to an overgrowth of interstitial tissue in any organ accompanied by a corresponding atrophy of the parenchymatous elements. Davidsohn points out (*Berlin klin. Woch.* Jan. 14, 1907) that, although it is generally assumed that the overgrowth is purely fibrous tissue, this assumption is not warranted in all cases, for frequently muscular fibres will be found present in considerable numbers. In the lungs this is especially the case, and the writer believes

that muscle fibres will be found in all cases of cirrhosis to which the term "carnification" is at all applicable. He himself describes a case in which the lower lobe of the right lung was in a state of advanced fibrosis, with adherent and thickened pleura, and in which microscopical examination revealed the existence of a large amount of unstriped muscular tissue. The origin of these fibres has given rise to some difference of opinion. Bull, who believes that muscle fibres normally exist in the alveolar walls, ascribes their pathological increase to mere hyperplasia. Others regard them as being derived from the blood-vessel walls; while the present writer favours the view that they develop under abnormal conditions out of young connective tissue fibres by metaplasia.

ABADIE'S SIGN IN TABES DORSALIS.

According to Abadie analgesia of the tendo-Achillis is an important sign in locomotor ataxia. He maintains that in 80 per cent. of tabetic patients strong pinching of this tendon is quite painless, and that the absence of pain is independent of the sensibility of the skin. In order to test this statement Rauni has devised a special calipers, the pressure exerted by which can be estimated by means of a dynamometer attached to its limbs. He finds that normally, when the instrument is applied immediately behind the ankle, an unpleasant sensation is produced at a pressure of from 5 to 10 kilos, and a painful sensation over 10 kilos. Tabetic patients can bear, as a rule, a pressure of from 10 to 20 kilos without pain, but this is not constant, and some quite healthy men are also very insensitive. In over 20 per cent. of tabetics the normal sensibility is retained. In neurasthenics there is very frequently a hypersensitive condition, and this is never found in cases of locomotor ataxia.—*Munch. med. Woch.* 1906. No. 20.

A NEW TEST FOR BLOOD IN FÆCES AND IN STOMACH CONTENTS.

Boas describes the following test for the presence of altered blood in vomit and in fæces. The test is a modification of that which is employed by Storch to distinguish between fresh and Pasteurised milk. The stomach contents are mixed

with a little acetic acid, are extracted with ether, and then to the extract a few drops of a p-phenylene diamine chlorhydrate solution (1 in 200) are added. Then, if the mixture is very acid, a cubic centimetre of half normal solution of caustic potash in alcohol is added, and lastly 10 to 15 drops of hydrogen peroxide. If the reaction is positive a characteristic olive-green ring shortly forms between the ether and the peroxide, and slowly deepens into a strong violet colour. If blood is absent the green colour is either altogether absent, or appears only after long standing.—*Centrabll. f. inn. Med.* 1906. No. 24.

TREATMENT OF GRAVES'S DISEASE BY THE SERUM AND MILK OF
THYROIDECTOMISED ANIMALS.

The serum treatment of Graves's disease is founded on the assumption that substances collecting in the body fluids of thyroidectomised animals would neutralise the over secretion of the thyroid in man. This treatment has now been put into effect by many workers, who have employed either the milk or the blood serum of various animals as their therapeutic agent. Thus Ballet has employed the blood serum of dogs; Lang the milk of thyroidectomised goats; and Moebius the blood serum of sheep. All authors agree that the treatment is of some value, and that it is at any rate absolutely harmless. Korschun and Iwanoff have lately used the blood serum of goats, taken one or two months after extirpation of the thyroid. The serum was put up in flasks containing 5 cc., and was kept sterile by the addition of one-half per cent. chloroform. Five cases in all have been treated; three by hypodermic injections every second day, and two by daily doses given by the mouth. In all of them the nervous symptoms improved, and the pulse became slower and more regular. Oxidation in the body increased, as proved by the urinary analysis, and the muscular tremors became much less. The thyroid even diminished in size, but the exophthalmos persisted. The symptoms tended to return after cessation of treatment.—*Journal méd Charkoff.* No. 2. 1906.

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. MAGEE FINNY, M.D., F.R.C.P.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF PATHOLOGY.

President—JOSEPH O'CARROLL, M.D., F.R.C.P.I.
Sectional Secretary—PROFESSOR A. H. WHITE, F.R.C.S.I.

Friday, January 4, 1907.

THE PRESIDENT in the Chair.

Uncinaria duodenalis from St. Vincent (West Indies).

PROFESSOR McWEENEY, through Dr. Farnan, exhibited specimens of the above sent to him by Dr. Branch, Government Medical Officer at St. Vincent, where the parasite was a regular plague. The exhibit consisted of the washings of the intestine of a child. Two sorts of worms were present—viz., *Trichocephalus dispar* in large tufted masses, and *Uncinaria (Ankylostoma) duodenalis*. The male and female trichocephalus are very different. The male and female uncinaria are not very unlike each other. The difference was shown by microscopic slides. The male uncinaria was smaller than the female. One measured 7.5 mm. long by 0.47 mm. thick [Manson gave 6 to 11 mm. by .4 to .5]. Its remarkable copulatory organ consisted of 2 spicules, beautifully striated under a high power, surrounded by a sort of umbrella-like arrangement supported by 11 ribs. The female was longer and thicker than the male. One measured was 17 mm. long, but was thinner than the male [.37 mm.]. However, it may have

been a damaged specimen. Manson gives 1 mm. Another measured .469 in width, so that the females did not seem to agree in width with Manson's average. A new species of uncinaria, called *A. americana* parasitic in man, was described in 1902 by Stiles, and is now made into a new genus called *necator*. It hails from the same neighbourhood as *U. duodenalis*, and does a fearful amount of mischief, especially to children, causing great retardation of development, anæmia and cachexia. The specimens shown, however, seemed to be the ordinary *U. duodenalis*. In Europe the worm chiefly attacks miners, and attention was first called to it in connection with the boring of the St. Gothard tunnel in 1880, when it caused a serious outbreak of a "pernicious" anæmia amongst the workmen. It has recently occurred in England amongst the tin miners of Cornwall, and Boycott and Haldane have written two interesting papers about it in the *Journal of Hygiene*. It causes a marked eosinophilia. He also exhibited a small piece of duodenum showing exceedingly minute black spots, almost needing a lens to see them. These were the bites of the uncinaria, whose organs of attachment and piercing 4 hooks and 2 teeth are in the interior of a sort of "mouth capsule," and require patience and strong magnification in order to make them out.

A Case of Suffocative Hydrothorax in which the Pleuræ were tapped several hundred times.

DR. O'CARROLL said the history of the case he had to put before the Academy was interesting, clinically as well as pathologically. It was that of a man, aged sixty-five, robust, cheery, amiable, and intelligent, who entered hospital in May, 1900, suffering from great distress in breathing and epigastric pain. Considerable swelling and tenderness in the epigastrium led him to think that the patient had some epigastric tumour. The urine, small in quantity and dark in colour, had a fair amount of sugar in it, and it was thought probable that the pancreas was involved. A leisurely examination revealed a systolic apex murmur, faint, and not transmitted very far, together with some dulness in both pleuræ. A month afterwards the right pleural cavity was tapped, and forty ounces of fluid were withdrawn. Two days later the left pleural cavity was tapped, seventy-six ounces being withdrawn. By way of corroboration of a recantation of the first diagnosis already made, the liver receded up under the lower ribs, and from

that time onwards there was no further suspicion of any abdominal mischief, although the epigastric distress recurred whenever the pleuræ became full. The sugar in the urine diminished at every tapping, and frequently disappeared, and seemed to be more or less referable to the amount of dyspnœa and cyanosis present from time to time. Occasionally, as might be suspected, there was a trace of albumen in the urine. A slight purplish tinge was visible through the patient's natural ruddiness, and the veins in his neck were slightly more prominent than they would ordinarily have been. He had also at first some œdema of the legs. Tapping had to be resorted to to such an extent that within the first six months in hospital sixty tapplings were actually recorded, and probably some tapplings which were not noted. The œdema disappeared, and the abdomen became normal, but subsequently, when the effusions were becoming considerable, the epigastrium swelled out again with the original tenderness. From about the third or fourth month of his residence the conclusion had been arrived at that he had some obstruction of the vena azygos major, and the diagnosis rested there to the end. It was confidently believed, on purely anatomical grounds, that the mischief must reside there. During the first four or five months the pleuræ were tapped almost alternately. Thereafter the right one was tapped about twice for every time the left was tapped, and this proportion was maintained till March, 1902, when the left pleural cavity ceased to secrete, as the result of an adhesive pleuritis. He had then to be tapped twice as often on the right side, and this went on, practically every second day, to the amount of fifty and sixty and seventy ounces till the beginning of May, 1903, almost three years after his admission. Then the right pleura began to show signs of not yielding as much fluid as formerly, and of being annihilated by adhesive pleuritis of rapid course. He died when this was complete, practically as if he had been garotted in such a way as to stop the venous flow into the heart without obstructing the trachea, the process lasting about two days. He had spent three years all to five days in hospital, had hardly lain down in bed for more than two or three hours nightly all that time, but had retained weight, appearance, and good spirits up to the fatal and final closure of the right pleural cavity three days before death.

At the *post-mortem* examination it was difficult at first sight to find any abnormality to account for the clinical history. Oval

or roundish plaques of ossifying fibrocartilage were found at the sides of the intervertebral discs in the lower half of the dorsal and in the lumbar region. These may have been attributable to a chronic rheumatoid condition, of which, however, he showed no other sign, or have been conditioned by his having to sleep in a chair at night during the three years in hospital. On examining the heart and slitting up the vena cava superior a distinct prominence was noticed, which appeared to bulge forward the posterior wall of the cava and to turn off with an L shape into the posterior wall of the vena azygos. This was an aggregation of tubercular glands of no great bulk; but the real mischief was caused by an actual fusion of the gland mass with the azygos wall exactly at its outfall into the cava. At this very point the azygos was closely adherent to the gland capsule in a crinkled, depressed scar, of slate colour, corresponding to that of the gland beneath. The girth of the vein at this point was half that immediately to the right of it. The total amount of fluid withdrawn during the three years was computed to weigh about three-quarters of a ton.

DR. MARTLEY instanced a case bearing some similarity to that described by Dr. O'Carroll.

Specimen after Talma-Morrison Operation.

DR. MOORHEAD exhibited a specimen of above. The patient, a girl, aged twenty-two, was admitted to hospital in April last suffering from ascites, which had developed in a couple of days. After tapping, an operation was decided upon. The liver was found to be enlarged, firm, and hard. The surface was scraped, and the great omentum was stitched to the abdominal wall. After the operation the patient was tapped at intervals of ten days—200 ounces of ordinary ascitic fluid being got. About two months ago she began to lose weight. It was decided to see what could be done to establish a permanent drain to the peritoneum, but no improvement took place, and the patient afterwards died. The interest of the specimen was in showing the results of a Talma-Morrison operation six months after its performance. On making the autopsy he found adhesions across the anterior abdominal wall, and along these could be seen the development of new veins, chiefly between the two peritoneal surfaces. There was no engorgement of the deeper vessels. The

ones that had increased in size or number were the superficial ones. So far as concerned what they had hoped to do, the operation was successful—i.e., new collateral channels had been established. That it was not more so was probably due to the fact that the patient, in addition to cirrhosis, had a nutmeg liver. At the *post-mortem* they found no valvular lesions to account for their first idea that the heart might be partly the cause of the ascites, but the right ventricle was intensely fattily degenerated. In most cases of cirrhosis some alcoholic history could be obtained. This patient, however, had been a teetotaler all her life, but on inquiry he found that part of her occupation was the putting of photographer's negatives into methylated spirits, which might have had something to say to the case.

MR. WHEELER instanced a case in which, after finding an enlarged liver roughened on the surface, he performed a Talma-Morrison operation. That was two years ago. The patient was tapped once after the operation, but never since. He has been extremely well, and has gained three or four stones in weight. The other day he came to show himself; no tapping was required, but on examination the urine showed a good deal of albumen, giving signs of a cirrhosis of the kidneys. Ninety per cent. of cases in which there were no complications had been cured of ascites by the Talma-Morrison operation.

DR. EARL said he had been struck with the fact that an alcoholic history was out of the question in many cases of cirrhosis—such as cirrhosis occurring in children. A great number of the patients met with in hospital practice drank all they could get, and if there was any intimate connection between alcoholic indulgence and cirrhosis of the liver it should be one of the commonest affections, which it was not by any means.

THE CHAIRMAN thought it hardly possible to be sure of the histological condition of the liver through such an incision as is made in most laparotomies. Outside inspection of the liver did not show the condition of the inside or of the capsule. He was, therefore, somewhat sceptical when he heard the liver accurately described on the basis of an incision for a Talma-Morrison operation, and he was not sure that the evidence did not indicate that the ascites would have disappeared eventually without any operation.

DR. FARNAN and DR. GUNN also spoke, and DR. MOORHEAD replied.

Traumatic Rupture of Heart.

MR. WHEELER showed a ruptured heart. The case was that of a young actor, who was killed by a motor car in August. The heart was absolutely torn in two.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—A. F. DIXON, M.B., Dubl.

Sectional Secretary—E. P. M'LOUGHLIN, M.B., R.U.I.

Friday, January 25, 1907.

THE PRESIDENT in the Chair.

The Musculature of the Villi.

MR. F. O'B. ELLISON (introduced by the President) presented a note on the above. He pointed out that the villi of the dog are club-shaped, not pointed or cylindrical, as is generally described, and as is the case in the cat. This club-shaped extremity contains a large quantity of smooth muscle which is not connected with the muscularis mucosæ. The latter consists of three layers—outer longitudinal, middle circular, and inner longitudinal. The fibres derived from the muscularis mucosæ in the cat pass round the glands of Lieberkühn, and form a sort of sphincter for the latter. A number of microscopic sections of villi were shown in illustration of the points indicated, and one of the specimens showed compound villi.

PROFESSOR W. H. THOMPSON said that the appearance of round spaces with transverse sections of muscle in the first section shown would come to some of them as a revelation of the amount of muscle that could be present in villi. When the specimen first turned up he thought these were engorged capillaries filled with blood, but careful examination would convince anyone that this is not so, and they would find undoubted evidence that they were muscle fibres. He had shown the section to certain examiners in London; at first they said they were blood capillaries, but they afterwards agreed that such was not the case. Further facts that Mr. Ellison had made out made it exceedingly probable that there was far more muscle in the villi than came up from the muscularis mucosæ. If so, it would make the working of the villi a mechanical process about which there would

not be very much mystery. The investigation, however, was not complete.

THE PRESIDENT expressed the hope that research in the same direction would be continued. It was probable that as much difference would be found between the specimens shown and the villi of the human subject as there was between those of the cat and those of the dog.

The Estimation of Urea in Urine, and the Estimation of Hydroxybutyric Acid in Urine.

MR. WM. CALDWELL (introduced by the President) read a paper on the above subject.

Phosphorus Muscarine.

MR. CALDWELL then communicated a series of notes detailing the process by which he had succeeded in producing, through the interaction of triethylphosphine with monochloroacetal and monochloraldehyde, a new chemical compound—triethylphosphine-chloraldehyde or “phosphorus muscarine.” Triethylphosphine combines with monochloroacetal to give $(OC_2H_5)_2, CH. CH_2. P (C_2H_5)_3. Cl.$, triethylphosphine-monochloroacetal, which, on treatment with concentrated hydrochloric acid, yields the aldehyde $CHO. CH_2. P (C_2H_5)_3. Cl.$, triethylphosphine-chloraldehyde. Monobromoacetal likewise combines with triethylphosphine. Monochloraldehyde unites with triethylphosphine with the production of a syrup having a beautiful green fluorescence. The syrup placed *in vacuo* over sulphuric acid crystallises in a few days. Monobromoaldehyde also combines with triethylphosphine forming a crystalline compound. The structure of these compounds is $CHO. CH_2. P (C_2H_5)_3. X.$, where X denotes chlorine or bromine. The salts of this compound have been prepared, and their properties are being studied. On account of the similarity of structure of this compound to the corresponding nitrogen compounds, and inasmuch as muscarine occupies an intermediate position to choline and betaine, it is proposed at the present to name this compound phosphorus muscarine.

The Calcar Femorale.

THE PRESIDENT exhibited a series of sections and X-ray photographs of the upper end of the femur to illustrate the arrange-

ment of the cancellous lamellæ and of the structure known as the calcar femorale. The calcar femorale was shown to represent the posterior aspect of the bent upper end of the tubular femur. The bent portion of the tubular bone becomes oval in transverse section. In the young bone, what is afterwards the calcar forms the posterior surface of the neck, but, with the development of the trochanters and the projections for muscular attachments, this part of the surface is covered over and comes to lie deeply, remaining, however, visible in section. When carefully examined in sections the outer and upper part of the lamellæ forming the calcar are seen to bend forwards so as to become continuous with the lamellæ which mark off the great trochanter and which form the upper and outer part of the neck of the tubular bone. In the young bone, before the great trochanter has become united, these lamellæ also form a part of the surface. The spirally-arranged supporting lamellæ, formerly described by Dr. W. S. Haughton and the author, are attached in right and left-handed spirals to the deep aspect of these sunken parts of the surface of the neck of the bone, in precisely the same manner as to the other parts of the inner aspect of the hollow shaft and neck. The tubular nature of the neck and the disposition of the spirally-arranged supporting lamellæ are well seen in X-ray photographs. Further, the arrangement of the parts, as seen in photographs and in sections, can be reproduced in a model constructed with right and left-handed spirally arranged thickenings, placed within a tube and bent in the same manner as the upper end of the femur. The calcar femorale and the lamellæ which mark off the great trochanter are parts of the surface in the young bone, and in the adult they form parts of the physiological surface of the bent portion of the femur considered as a structure through which the weight of the body is transmitted. Hence the lamellæ of the cancellous tissue which fill the neck of the bone are attached to them in a manner similar to that in which lower down they are attached to the inner wall of the upper part of the shaft.

PROF. E. P. M'LOUGHLIN said that the communication threw quite a new light on the significance of the calcar, and the sections showed this structure to be very much more extensive than has been generally described.

Two Adult Male Subjects cut in the Long Median Plane.

PROF. FRASER exhibited the above. One had been cut four

or five weeks previously, and the other, an ordinary injected dissecting-room subject (not specially prepared), the day before the meeting. The latter formed an object-lesson in the description of the hollow abdominal viscera, having the largest stomach that he had ever seen. It was equably dilated from cardiac to pyloric orifice. It had distended the right and left aspects of the body wall, and appreciably diminished the size of both liver and spleen. He referred also to the varying relations of the ventral aorta to the sternum, to the presence of the embryonic cranial flexure in the adult, which did not cease with the bony dorsum sellæ, but extended as soft supporting tissue to the roof of the fossa interpeduncularis, a point which had great significance in the numerous measurements of the skull. He also drew attention to the variations in the distance between the perineal skin covering and the posterior extension of the body cavity in both male and female, and more particularly in the young. These sections were very instructive and much appreciated by students in the ordinary dissecting-room teaching.

V. E. M., 1907.

THE ninth "Voyage d'Études médicales aux Stations hydro-minérales et climatiques de France," organised by Dr. Carron de la Carrière, 2 Rue Lincoln, Paris, will take place under the scientific direction of Professor Landouzy, from the 1st to the 12th of September next. The detailed programme will be published in May, but the tour will include the mineral watering-places of the East of France and of the Jura: Sermaize, Vittel, Contrexéville, Martigny, Bourbonne, Luxeuil, Bains, Plombières, Gérardiner, La Schlucht, Bussang, Le Ballon d'Alsace, Besançon-Mouillère, Salins, La Faucille, Divonne.

OPSONINS IN MILK.

DRS. SIMS WOODHEAD and MITCHELL find that opsonins occur in milk in greater relative quantity than in the blood. They suggest that the milk feeding of infants may thus tend to impart to them passive immunity against tuberculosis.—*Journal of Pathol. and Bacteriology*, and *The Prescriber*, April, 1907.

ACONITE ("Wolf's bane"; "Leopard's bane"; "Women's bane"; "Venus's Chariot"; "Scorpion"; "Monkshood"; "Blue Rocket"), "Queen-Mother" of Poisons: its place in History, in Mythology, in Criminology; in Botany, in Therapeutics, and in Toxicology. By JOHN KNOTT, M.A., M.D., Ch.B. & D.P.H. (Univ. Dub.); M.R.C.P.I.; M.R.I.A.; &c.

(Concluded from page 308.)

As has been already intimated, one of the special objects of the present communication is to point out that the revival—indeed the origin—of our modern scientific knowledge of the toxicological properties and of the therapeutic value of aconite emanated from a Dublin source, and that the earliest germs of the same were sown in the DUBLIN MEDICAL JOURNAL. The early forties of the nineteenth century formed the new era in the scientific history of monkshood, an era in which the Dublin School of Medicine produced, and represented, the most important advances and discoveries made in Clinical Medicine—both theoretical and practical—and in all the sciences ancillary thereunto. In the medical generation which represented our metropolis in that decade the foremost English-speaking physicians of their time were to be found. And from its unique galaxy emanated a light which illuminated the dark and labyrinthine ways of mysterious and malignant aconite. "Mary Anne McConkey was indicted before Mr. Justice Torrens at the Lent Assizes, Monaghan, 1841, for the murder of her husband by the administration of *corrosive sublimate*, mixed with greens." Thus opens Dr. Geoghegan's account of the epoch-making case in which he appeared as an expert witness, and of which he informs the reader in the introductory paragraph that:—"The substance considered by the medical witnesses as most probably administered, and which the subsequent disclosures have shown to have been that employed, was monkshood, a poison which the records of toxicology and medical police indicate as rarely taken in fatal quantity, and one which, so far as my information extends, has not hitherto formed the subject of a criminal investigation in these countries" (DUBLIN JOURNAL OF MEDICAL SCIENCE, Vol. XIX., pp. 401, *et seq.*). A special poison was named in the indictment

because a weak solution of it was found in the prisoner's possession. Dr. Geoghegan states :—"The opinion given by me and embodied in the Crown counsel's brief was, that 'the medical facts were more conformable to the supposition of vegetable poison, and that *monkshood* was capable of producing the symptoms and rapid death observed.'" He further tells us : "My attention was drawn to *monkshood* as the special substance employed by a rumour prevalent amongst the peasantry in deceased's neighbourhood, that he had been poisoned by 'blue rocket.' [A striking instance, it may be remarked, in passing, of the almost inspired accuracy so often displayed in the popular "rumours" and opinions of the Irish peasantry ; as those who have had much experience of Irish country life can hardly ever have failed to notice.] I was led, by reflection on the nature of the symptoms, to the suspicion that the plant so designated might be the *Aconitum napellus*, the flowers of which are well known to be blue. I ascertained this to be the fact by exhibiting to the witnesses a drawing and carefully preserved specimen of the plant in flower, which was at once recognised by them as the 'blue rocket,' and which it appears is well known amongst the peasantry and others in Monaghan and the neighbouring counties." We also learn the following very interesting facts, which I trust that my readers will consider worthy of full-length quotation :

"The general acquaintance of the peasantry with this plant is to be traced to the circumstance that its flower formerly constituted one of the elements of decoration in party processions, and also to the extensive employment of its root by the northern horse-jockeys, who have attached to it the conventional designation of 'the root.' These persons resort to it largely in the operation of 'figging,' which consists in the introduction of a mixture of the bruised root of the plant and chewed ginger into the horse's anus, in order to render him lively, previous to sale, a result which it effects by its irritant action ; the consequences of this process are, however, occasionally untoward, as the animal is not uncommonly affected by twitching, and partial paralysis of the hinder extremities. The irritant effects are generally combated by the introduction of a mould candle into the anus. The above use of the plant is so well understood by the horse-jockey that a piece of the 'root' is carried in his waistcoat pocket as a sort of indispensable implement of the trade. I found also, by inquiry from the witnesses, that they were aware that the

plant is poisonous, and that 'it would blister the mouth if chewed'; that it grows commonly in the gardens near deceased's residence; and that they had heard of individuals in their country to whom it had proved fatal. I also learned that deceased was acquainted with its properties, having informed one of the witnesses about three months before his death that he had known it prove fatal to a horse-jockey, who having chewed it in mistake for ginger was taken ill and died in the same night. A gentleman resident in the county Monaghan has also mentioned to me an instance which occurred in his neighbourhood, in which a horse-jockey's child, who was in the habit of taking ginger out of its father's pocket, unfortunately on one occasion encountered 'the root,' and having eaten it, 'died the same night in great pain.'"

Among the items of invaluable information supplied by the eminent Dublin medico-legist in this report is the following note:—

"In a return furnished to the House of Commons, 'of all the inquisitions held in cases of death by poison in England and Wales during the years 1837 and 1838,' it appears that out of 545 cases two only were caused by monkshood, and both accidental. In an account of the statistics of poisoning in Denmark, out of ninety-nine cases in five years there is not one by monkshood. (*Zeitschrift für die gesammte Heilkunde*, Sept., 1839.) A comparison of this with the English return is interesting, showing that while, with us, opium and arsenic are the most usual poisons, in Denmark, poisoning with the mineral acids vastly preponderates."

And in a latter portion of the paper he gives the following account, which I regard as not only important in connection with the toxicology and symptomatology of aconite, but invaluable in the matter of the mistaken identification which is so peculiarly associated with the history of this noxious vegetable:—

"Through the politeness of the coroners for Manchester and Leicester, and of my friend, F. Fullagar, Esq., of the latter town, I have obtained the following particulars of the two cases of death from monkshood, noted in the parliamentary return; both of them occurred in the month of March, when the *plant sprouts up like young celery, for which it was in both instances mistaken* [*italics mine*]; in both also the root was the part eaten. In Mr. Fullagar's case the sufferer, a man, aged 56, had died

before his arrival ; the symptoms ascertained were heat of tongue and throat, which supervened during eating, vomiting and purging, sensation of swelling in the throat and over the body generally, subsequently lock-jaw and insensibility, with slight convulsions before death, which took place in an *hour and a quarter* from the period of the meal ; the quantity eaten was 'a handful' ; his child also partook of the root, but found it so acrid that it ate but little, vomited well, and recovered.

"The Manchester case was that of a boy 7 years old ; the symptoms ascertained were—a remarkable *sensation of swelling of the face*, clenching of the hands, and convulsions, which became very violent previous to death, *which occurred in two hours* ; the quantity taken not ascertained ; in neither case was a *post-mortem* examination held."

The extraordinary value of Dr. Geoghegan's paper is that the M'Conkey case included a simultaneous ("test-") case which terminated by recovery. The report of each is so graphically conveyed, and possesses so unique an importance in the history of the growth of our knowledge of the most virulent of poisons, that I venture to hope that no apology is necessary for quoting at full length :—

"On the 31st July, 1840, between one and two o'clock, the prisoner, her husband, the prisoner's father and a neighbour (M. A. Johnston), being in the house and about to dine together, the prisoner went out for salt and returned shortly bringing some in her apron. There was a pot boiling on the fire, from which she took a quantity of greens and placed them in a smaller pot, she then fried some bacon in a (tin) porringer, and prepared the greens on a table beside the dresser on which she had laid the smaller pot. During this proceeding the prisoner had her back to the rest of the company, and was so situated as to be screened from observation. Having made ready two plates of greens she presented one of them to her father, and the other to her husband, who also partook of some new potatoes which had been cooked in a boiler. The prisoner herself ate of the greens *remaining in the pot in which they had been boiled*, from which she also furnished some to M. A. Johnston, who ate what she received. A neighbour, George M'Meighan (father of M. A. Johnston), came in when dinner was nearly over, and, on the invitation of the prisoner sat down with the rest. The deceased having eaten *the greater part of what he had been helped to* complained that the

greens had a 'wild, bad (or sharp) taste,' to which the prisoner replied, that 'she did not know what bad taste they could have, unless a leaf had been boiled in them,' and added 'that they were the wildest and hardest that they had had that year,' and that 'she would give them to the pigs.' This the deceased would not permit her to do, but desired her to give what he had left to M'Meighan (who had been previously in excellent health), stating that they would be a novelty to him. Prisoner was unwilling to give them to M'Meighan, but at length did so, saying 'that there was dirt in them'; and at the same time helped him to some greens from the pot out of which *she was eating*, placing them on the side of the plate next what her husband had left. M'Meighan ate, in the first instance, prisoner's helping, which had no *disagreeable flavour*, remarking to deceased, when the latter complained of the flavour of what he had eaten, that 'it must be the taste of his (deceased's) mouth, as his (M'M.'s) greens were good.' It should be mentioned here that neither the prisoner, her father, nor M. A. Johnston *complained of any disagreeable flavour on the food*, nor were they *in the least unwell after partaking of it*. M'Meighan having consumed the prisoner's helping next finished what the deceased had left (a tablespoonful), and in about *two* minutes felt a burning in his mouth,* [*The symptoms above given are those stated on the trial; the following additional ones I had an opportunity of eliciting by inquiry from the witnesses; copious flow of saliva shortly after the meal, with a sensation of numbness, roughness and prickling in the mouth, coldness of the surface, cold sweats, diminution of the restlessness after vomiting, thirst and subsequently general soreness of surface; for a considerable time (some weeks) he experienced also 'a feeling of lightness in the head' after getting wet. (*Foot-note.*)], throat, gullet, and stomach, unaccompanied by any constriction of the fauces; shortly afterwards he experienced a sensation of swelling of the face, and inquired of a neighbour if it were so, who replied in *the negative*; he also had a general feeling of numbness and creeping in the skin. Having gone home he suffered from most distressing restlessness, followed by dimness of vision and stupor almost amounting to insensibility. About an hour after the meal he was found by a neighbour speechless, frothing at the nose and mouth, the hands and jaws clenched, appearing occasionally as if dead (syncope), and again reviving. After a lapse of another hour or so (two from the time

of meal) he was seized with vomiting of a green matter, from which he experienced *considerable relief*; there was also some purging. Between eleven and twelve the same night he was seen by Dr. Hurst, who found him labouring under vomiting and purging, tenderness of the epigastrium, cramps, tingling of the flesh, and burning taste in his mouth. He was not sufficiently well to leave the house for three days, and five weeks elapsed before he was able to resume his usual employment.

“The deceased was not seen during life by any medical man; about an hour, however, after the commencement of his complaints (at dinner) he was visited by two of the witnesses, who found him labouring under vomiting of a greenish matter, purging, excessive restlessness (indicated by frequent jumping in and out of bed), occasional incoherence, locked jaw, frothing (white) at the mouth and nose, and clenching of the hands. His sufferings were terminated by death at five o'clock, a little more than *three hours* after he had partaken of the greens.* [*The following symptoms, which did not appear in evidence, were ascertained to have been observed:—A constant complaint that his ‘heart was on fire,’ intolerance of pressure on the epigastrium; vomiting, at first the greens he had eaten, but afterwards bilious matter; face alternately pale and red, except shortly before death, when lividity appeared, coldness of surface, cold sweats. I am informed also by Dr. Hurst that after he was taken ill he wrote to an apothecary requesting him to send him something for a ‘dindling (tingling) through his flesh, and a biting like on his tongue.’ It will be observed that the above symptoms, taken in conjunction with those noted in the text, are almost in every respect identical with the symptoms of M'Meighan. (*Foot-note.*)] The individuals by whom he had been visited, and who had previously seen M'Meighan, were struck by the similarity of the symptoms in both cases. In addition to the moral *circumstances already related*, it appeared that during deceased's illness he indignantly repelled his wife's attentions, and broadly insinuated that he had been poisoned; the prisoner constantly removed the vomited matters and carried them out of the house.* [*One of the witnesses when examined at the Crown Solicitor's Office stated that she also scraped the floor with a spade. (*Foot-note.*)]” Such are the details of the earliest case of aconite poisoning which formed the subject of a criminal investigation in these countries. The

prisoner was convicted, and before execution confessed having poisoned her husband with the root of the "blue rocket." The latter had been "jealous of her, in consequence of a criminal intimacy which had subsisted for some time between her and a neighbouring individual." A ghastly illustration of the identity of the effects of unbridled passion on the Roman ("noble") lady of the generation of Ovid (as shown in the quotation above made from the *De Arte Amandi*) and the Monaghan peasant of the nineteenth century! I need not dwell further on the unrivalled acumen—clinical, scientific, and critical—which enabled Dr. Geoghegan to develop the evidence and secure the conviction.

Curiosity in the matter of monkshood was now thoroughly aroused. Professor Christison of Edinburgh, who was then in the zenith of his toxicological fame, found it necessary to assume a leadership in the progressive conquest; and, accordingly, we find that, under his immediate auspices, Dr. Alexander Fleming conducted an elaborate series of experiments in the years 1842 and 1843 on the toxicological and clinical properties of aconite. The results were given to the world in 1845. And in the latter year was published, too, in the DUBLIN JOURNAL OF MEDICAL SCIENCE, the results obtained by Dr. Eades, of this city, in his investigation of the same subject—toxicologically on the lower animals, and clinically on the human subjects of various maladies. The former experiments had been carried out, in the course of the previous winter, "at a meeting of a few medical friends"—"at Dr. Burton's, Kildare Street"; and the writer's description and comment combine to represent a model of what physical observation and scientific comment should be. He distinguished the *sensory* paralysis, which was really produced by aconitin, from the *motor* which had been so generally attributed to it, with a clearness of differential diagnosis and vividness of representation, which, so far as a pretty extensive research has informed me, had never been reached before. His experiments were made by inserting aconitin "in the cellular tissue" (thigh and dorsal region of cat and rabbit), and in each case one of the earliest effects was the appearance of "a thick, viscid mucus" hanging from the animal's mouth. No purging was produced, but the loss of vision was a specially conspicuous symptom, and it was concluded that aconitin "does not cause stupor or convulsions; when the latter occur they take place a short time previous to death, and appear to be caused by a want of due

-circulation of the brain." The results so obtained led Dr. Eades to the employment of aconite in various neuralgic affections, in which it was found to afford great relief.

The publications of Geoghegan, Eades, and Fleming—and the embodiment of their toxicological data in the classical volumes of Christison and of Taylor—finally established the scientific and clinical position of aconite; with, however, the reserved complications dependent on the various strengths of the preparations employed. These were most seriously perplexing: from the difference of the standards of different countries; from confusion of the species of the aconite used; and from the various proportions of the aconitin present, according to the part of the plant employed in the preparation. With regard to the last-mentioned factor it was pointed out by Matthioli himself that: "*Tota planta pernecabilis admodum est. Sed radix cæteris partibus atrocior adeo ut manu aliquandiu retenta, quousque concalescat, tenentem perimat.*" A considerable portion of the knowledge imparted to his contemporaries by that encyclopædic pioneer in botany and therapeutics—flavoured as it often was with mythology and astrology—was unwisely neglected in subsequent centuries. Of the fatal importance of (*the want of*) a universal standard in the preparations and uses of a drug possessed of powers so deadly, an appalling object-lesson was furnished in 1880 by an accident which endangered the lives of two patients and actually destroyed that of the prescribing physician. Dr. Meyer (of Winschoten, Holland) prescribed for a man of broken constitution, aged 61, who was suffering from bronchitis; and referred the messenger to a special pharmacist. He had been in the habit of giving the *German* aconitin; and, on this occasion, the pharmacist, whose supply of the alkaloid had recently been exhausted, had procured some of the *French* preparation. Not knowing the difference of strength, he dispensed this latter according to Dr. Meyer's prescription. Several doses were taken by the patient, who presented serious symptoms—very typical of aconitin poisoning—after each; vomiting gave relief each time. "*La femme du malade, très inquiète se rend avec le reste de la solution auprès du docteur Meyer qui, persuadé de l'innocuité de son ordonnance, prend aussitôt devant elle 50 à 60 gouttes du liquide, représentant 4 milligrammes environ, et cela peu de temps après son diner. Les vomissements ne se produisent pas, par*

Aconite.

suite probablement de la paralysie du centre vomitif, ou de la paralysie générale causée par l'énormité de la dose; la mort arriva cinq heures après. L'autopsie fit constater des phénomènes de gastro-entérite, de congestions hépatique, splénique et rénale." It is an important, as well as an interesting, fact that Plugge, to whom the analysis was entrusted, failed to detect aconitin in a benzene extract of the viscera. (Dr. Meyer's other patient had a narrow escape with life after an unknown dose.)

In connection with the administration of aconitin on a full stomach, as in the fatal case of Dr. Meyer, a very important point has been brought to light by M. M. Hottot and Liegeois, to which I would take the opportunity in this connection of calling emphatic attention. "C'est que l'état de réplétion de l'estomac chez les animaux en expérience apporte moins d'obstacles à l'absorption de l'aconitine que cela n'a lieu pour certains autres alcaloïdes, la strychnine, par exemple. Ainsi, tandis que l'aconitine ingérée par un animal en digestion le tue à la dose de 1 à 2 milligrammes, la strychnine n'amène la mort qu'avec des doses de 2 à 4 centigrammes et plus. Ce résultat est bien l'effet de l'absorption plus prompte par l'estomac dans un cas que dans l'autre; car si, dans d'autres expériences comparatives, au lieu d'administrer ces alcaloïdes par la voie gastrique, on les introduit sous la peau, il suffit, pour tuer, de milligrammes et non plus de centigrammes de strychnine, et la mort est plus rapide après l'injection sous-cutanée de cette dernière substance qu'après celle de l'aconitine." And, after referring to M. Gubler's experiments on aconitine, Debout points out, in his lucid monograph on this subject: "Un de ses élèves, expérimentant sur lui-même, a remarqué que, lorsqu'il prenait son granule d'aconitine avant la fin de la digestion, il ressentait plus d'irritation gastrique que dans les circonstances inverses." This is, of course, a most important clinical fact, and one to which, I think, too little attention has been called by the authors of our best-known text-books.

The value of the observations made on themselves of the effects of aconitin by Dworzack and Heinrich—two of Schroff's pupils—can hardly be over-estimated in this connection, undertaken as they were under the supervision of the highest expert skill. Accordingly, Soulier's condensed version of their report is worthy of our best attention. It is as follows:—"Extrême amertume, persistante, avec sensation mordicante sur la langue, puis tout à coup sensation générale de chaleur surtout à la tête et dans l'abdomen

avec explosion de sueurs. Sensorium graduellement troublé, fixation des idées impossibles ; pensée paresseuse, vertige, perte complète de la mémoire. Après une dose de 3 centigrammes, la faiblesse de la mémoire persista plusieurs jours. Dans le domaine du trijumeau une sensation de contraction et de pression qui fit place à une douleur erratique, puis continue, que le plus léger effort d'attention, de réflexion rendait insupportable. Ces douleurs trifaciales avaient été précédées d'une sensation de fourmillement dans la peau de la figure d'abord, puis généralisée à toute la surface du corps. Dès le commencement de l'expérience mobilité spéciale de la pupille, tantôt étroite, tantôt dilatée, finalement mydriase très prononcée. Sensation pénible de compression au niveau des oreilles et bourdonnements.

" Pouls au début manifestement accéléré, puis ralenti au-dessous de la normale, petit, faible, de temps en temps dicrote.

" La respiration également baissait ; avec les fortes doses elle devenait pénible, difficile, sensation de constriction de la poitrine et du cou. Un centigramme provoquait de la toux avec expectoration facile et sensation de sécheresse au gosier.

" Muscles striés atteints ; le moindre effort produit de la lassitude ; flaccidité particulière des jointures.

" Après un temps très court éructations, coliques, nausées, vomissements. Muqueuse buccale, d'abord rouge, puis recouverte de vésicules blanchâtres ou jaunâtres ; ptyalisme ; activité rénale manifestement augmentée, diurèse."

Soulier points out in a footnote : " Il ne s'agit pas, bien entendu, de l'aconitine cristallisée qui se prescrit par quart de milligramme."

The usual effects of administration of aconite and of its preparations, whether in medicinal or in toxic doses, are, of course, familiar to all readers. Accordingly, it would be idle to undertake a rehearsal of them on the present occasion. But there are a few special signs and symptoms to the peculiarities of which most of the current authors have not appeared to me to accord the prominence which they deserve. That the preparations of this plant have a specific action on the trifacial nerve is a fact of which I have thoroughly satisfied myself—not only by observations on others but by experiments on my own person. Accordingly, in the confusing deluge of synthetic "pain-killers" and analgesics with which the present generation has been overwhelmed, I venture to express the opinion that its great value in

cases of obstinate facial neuralgia is not duly estimated. By its employment, externally and internally, I was able to give relief, within the past few months, to several cases of this kind, which had gone the rounds of the majority of our metropolitan hospitals without any satisfactory result—and to two of whom the operation of *removal of the Gasserian ganglion* had actually been suggested! To the frequent occurrence of trismus and general convulsions in cases of overdosing I would call attention: with special regard to the fact that although often observed they are *not constant*, and, accordingly, not being characteristic are even more likely to mislead than to guide. The specific action on the various glands which contribute to the mixed salivary secretion was demonstrated with peculiar vividness by Dr. Eades's experiments, in which, it will be remembered, the aconitin was not introduced into the mouth at all. The secretions of the liver and kidneys have been considerably increased by large doses; a clammy, viscid perspiration is characteristic, to a certain extent, of the poisoning cases, although it must be remembered that something very similar to this last is found in other cases of painful shock. The action on the pupil is very remarkable—it was noticed by Dr. Eades—and the peculiarity of the course of its influence on the iris elicited contradictory reports from various (superficial) observers. It was noticeable that direct application to the conjunctiva caused contraction of the pupil; it was also reported that in cases of advanced poisoning the pupils were always dilated. There was an apparent inconsistency—the old, old dispute regarding the colour of the chameleon. Both were right, and the account of Soulier may be finally accepted: “Ce sont d'abord des alternatives de contractions et de dilatations, un tremblement pupillaire avec tendance au myosis, qui correspond à cette première période d'ataxie que nous retrouvons toujours dans l'action de l'aconitine sur tous les appareils et systèmes, puis la pupille se dilate; cette dilatation doit être rattachée à l'irritation gastro-intestinale, soit à l'asphyxie.” And with regard to its action on the heart, and the precise cause of the fatal issue in case of an overdose, a very considerable amount of confusion seems to exist even now—in the minds of “the general”—somewhat similar to the apparently interminable uncertainty associated with chloroform. The obvious depression of cardiac vigour has—almost unconsciously, perhaps—riveted thereto in the popular conception the notion of the mechanism

of syncope. This view, however, is by no means in accordance with that of the most reliable authorities. Eades attributed it to asphyxia, and in many of Fleming's experiments on animals "the heart continued to beat for some time after death—in one case for a whole hour." Those examined by M. Laborde displayed in the stomach, intestines, and liver, "un état typique, une coloration acajou très foncée, produit par une infiltration apoplectiforme. Les reins sont également le siège d'une congestion intense, apoplectiforme, comme celle du foie; sur les poumons, ecchymoses *larges* si l'intoxication a été prolongée; *ponctuées*, identiques à celles de la mort violente par strangulation ou pendaison, si la mort a été très rapide." And, in one of the best accounts of aconite and its alkaloid with which I am acquainted, Soulier states (under the heading of *Respiration*):— "Ce sont d'abord des troubles tenant aux contractions irrégulières des muscles respiratoires, à leur état convulsif d'où des symptômes de suffocation rappelant ceux de la strangulation et de la pendaison, d'où les ecchymoses sous-pleurales en pointillé ou par taches. *C'est par la respiration, non par le cœur, que l'aconitine tue, d'où l'indication et les succès de la respiration artificielle. L'aconitine, probablement, excite d'abord, puis paralyse le bulbe, le centre respiratoire.*" This author also indicates with special emphasis the observations of Laborde on the heart's action when under the influence of this poison: "Lorsque le cœur s'arrête, l'arrêt est précédé d'une période d'intermittence. Malgré l'arrêt du cœur, la fibre cardiaque reste excitable. En résumé, et c'est un fait d'une grande portée physiologique et médico-légale, un tracé cardiographique présentant une *amplitude environ double des contractions cardiaques, précédée ou non d'une période de contractions irrégulières et plus nombreuses, suivie d'un état de tétanisme vasculaire ou d'intermittences* serait caractéristique d'un empoisonnement par l'aconitine."

Such are the principal facts of importance connected with the physical, therapeutic and toxological history of the *mater et caput* of known poisons; the destructive properties of which have been occasionally utilised from a period of unknown antiquity, and the modern scientific knowledge of which has been tardily developed in three stages, respectively initiated by: Matthiolus of Rome, Störck of Vienna, and Geoghegan of Dublin.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, March 23, 1907.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending March 23, 1907, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 23.0 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,117,547. The deaths registered in each of the four weeks ended Saturday, March 23, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Mar. 2	Mar. 9	Mar. 16	Mar. 23			Mar. 2	Mar. 9	Mar. 16	Mar. 23	
22 Town Districts	27.3	23.7	23.0	23.0	24.3	Lisburn -	9.1	18.2	31.8	22.7	20.5
Armagh -	41.2	18.7	6.9	20.6	20.6	Londonderry	16.0	20.9	23.3	19.6	20.0
Ballymena	33.5	33.3	23.9	23.9	29.9	Lurgan -	44.3	8.9	31.0	17.7	25.5
Belfast -	28.7	23.5	22.0	23.5	24.4	Newry -	21.0	21.0	8.4	12.6	15.8
Clonmel -	15.4	15.4	—	25.6	14.1	Newtown- ards	17.2	34.3	40.1	28.6	30.0
Cork -	24.0	26.7	28.1	25.3	26.0	Portadown -	15.5	20.7	20.7	25.8	20.7
Drogheda -	16.3	20.4	8.2	28.6	18.4	Queenstown	6.6	6.6	—	6.6	5.0
Dublin (Reg. Area)	28.6	25.2	25.0	22.3	25.3	Sligo -	38.4	14.4	33.6	14.4	25.2
Dundalk -	35.9	16.0	16.0	12.0	20.0	Tralee -	42.3	31.7	31.7	10.6	29.1
Galway -	35.0	11.7	3.9	62.1	28.2	Waterford -	27.3	29.2	21.4	27.3	26.3
Kilkenny -	9.8	39.3	29.5	24.6	25.8	Wexford -	32.7	9.3	14.0	4.7	15.2
Limerick -	24.6	21.9	23.2	26.0	23.9						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, March 23, 1907, were equal to an annual rate of 1.4 per 1,000, the rates varying from 0.0 in sixteen of the districts to 5.1 in Clonmel, in which district the 5 deaths from all causes include one from diarrhœa. Among the 167 deaths from all causes registered in Belfast are 4 from measles, one each from whooping-cough, diphtheria, and diarrhœa, 6 deaths from enteric fever, 9 from cerebro-spinal fever, and 5 returned as from *cerebro-spinal meningitis*. The 37 deaths from all causes registered for Cork include 2 from whooping-cough. Among the 14 deaths from all causes in Waterford there was one each from enteric fever and from diarrhœa; and 5 deaths from all causes in Kilkenny include one from whooping-cough.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 390,691, that of the City being 300,850, Rathmines 35,606, Pembroke 27,854, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, March 23, 1907, amounted to 180—90 boys and 90 girls; and the deaths to 174—74 males and 100 females.

DEATHS.

The registered deaths represent an annual rate of mortality of 23.2 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the Area, the rate was 22.3 per 1,000. During the four weeks ending with Saturday, March 23, the death-rate averaged 28.6, and was 1.2 below the mean rate for the corresponding portions of the ten years, 1897–1906.

The registered deaths (174) included 7 from whooping-cough, 3 from measles, 4 from influenza, one from diphtheria, 2 from cerebro-spinal fever, and one from *diarrhœa*. In each of the 3 preceding weeks, deaths from measles numbered one, one, and 5; deaths from influenza were 5, 0, and 4; deaths from whooping-cough were 7, 7, and 5; deaths from diphtheria were 0, one, and

one ; deaths from cerebro-spinal fever were 2, 4, and one ; and deaths from diarrhoeal diseases were one, one, and 4.

There were 2 deaths from lobar pneumonia, 12 deaths from broncho-pneumonia, and 8 deaths from *pneumonia* (not defined).

The deaths from all forms of tuberculous disease numbered 37, and include 14 deaths from tubercular phthisis, 10 deaths returned as from *phthisis*, 5 deaths from tubercular meningitis, one death from tubercular peritonitis, and 7 deaths from other forms of the disease. In the 3 preceding weeks, deaths from all forms of tuberculous disease numbered 48, 34, and 42, respectively.

Deaths from malignant diseases included one death from carcinoma, one from sarcoma, and 4 deaths from cancer (undefined).

The deaths of 4 infants prematurely born were recorded.

Of 8 deaths from diseases of the brain and nervous system, 4 were of children under 5 years of age from *convulsions*, and one was that of a child aged between one year and 5 years from meningitis.

Diseases of the heart and blood vessels accounted for the deaths of 20 persons, and bronchitis caused 28 deaths.

Of 4 deaths attributed to accidental causes, one was that of an infant under one year of age from suffocation in bed.

In one instance the cause of death was "uncertified," there having been no medical attendant during the last illness. The death in question was that of an infant under one year old.

Fifty-nine of the persons whose deaths were registered during the week were under 5 years of age (28 being infants under one year, of whom 9 were under one month old) and 35 were aged 60 years and upwards, including 17 persons aged 70 and upwards, of whom 7 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer

of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended March 23, 1907, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever (a)	Total
City of Dublin	Mar. 2	-	•	•	6	-	-	5	-	1	9	14	-	•	•	2	37
	Mar. 9	-	•	•	3	-	-	3	-	1	8	14	-	•	•	3	26
	Mar. 16	-	•	•	8	1	-	7	-	3	7	19	-	•	•	1	46
	Mar. 23	-	•	•	4	8	-	5	-	1	7	12	-	•	•	2	39
Rathmines and Rathgar Urban District	Mar. 2	-	•	•	1	-	-	1	-	-	-	-	-	•	•	-	2
	Mar. 9	-	•	•	1	-	-	1	1	-	-	-	-	•	•	-	2
	Mar. 16	-	•	•	2	-	-	-	-	-	-	-	-	•	•	-	2
	Mar. 23	-	•	•	2	-	-	-	-	-	-	-	-	•	•	-	2
Pembroke Urban District	Mar. 2	-	-	-	1	-	-	-	-	-	-	1	-	•	5	1	8
	Mar. 9	-	2	1	1	-	-	-	-	-	1	-	-	•	20	-	25
	Mar. 16	-	-	-	-	-	-	-	-	2	2	1	1	•	7	-	13
	Mar. 23	-	-	-	-	-	-	-	-	1	2	-	-	•	13	1	17
Blackrock Urban District	Mar. 2	-	•	•	5	-	-	-	-	-	-	-	-	•	•	-	5
	Mar. 9	-	•	•	3	-	-	-	-	-	-	-	-	•	•	-	3
	Mar. 16	-	•	•	1	-	-	-	-	-	-	-	-	•	•	-	1
	Mar. 23	-	•	•	1	-	-	-	-	-	-	-	-	•	•	-	1
Kingstown Urban District	Mar. 2	-	•	•	1	-	-	-	-	-	-	-	-	•	•	-	1
	Mar. 9	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Mar. 16	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Mar. 23	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
City of Belfast	Mar. 2	-	•	•	14	-	-	7	1	5	18	4	3	•	•	20	73
	Mar. 9	-	•	•	13	-	-	3	-	7	12	8	1	•	•	21	70
	Mar. 16	-	•	•	10	-	-	11	-	6	18	5	1	•	•	24	73
	Mar. 23	-	•	•	12	-	-	8	-	4	8	4	-	•	•	18	49

(a) Mr. Fawcett reports one case of cerebro-spinal fever as having occurred in Rathmines during the week ended March 9.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended Saturday, March 23, 1907, 24 cases of measles were admitted into hospital, 15 patients were discharged, and 63 cases remained under treatment at its close.

Eight cases of scarlet fever were admitted to hospital, 6 were discharged, and 83 cases remained under treatment at the close of the week. This number is exclusive of 13 convalescents under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

Ten cases of typhus were admitted to hospital during the week, there was one death, and 13 cases remained under treatment at its close.

Seven cases of diphtheria were admitted to hospital, 7 were discharged, there was one death, and 21 patients remained under treatment at the close of the week.

Six cases of enteric fever were admitted to hospital, 4 were discharged, and 24 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 14 cases of pneumonia were admitted to hospital, 5 were discharged, there were 3 deaths, and 36 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, March 23, 1907, in 76 large English towns, including London (in which the rate was 16.3), was equal to an average annual death-rate of 16.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 20.6 per 1,000, the rate for Glasgow being 24.1 and that for Edinburgh 17.1.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, M.D., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ending March 23. From this Report it appears that of a total of 25 cases notified 18 were of scarlet fever, 4 of diphtheria, 2 of erysipelas, and one of enteric fever. Among the 334 cases of infectious diseases in hospital at the close of the week were 105 cases of scarlet fever, 38 of whooping-cough, 66 of measles, 38 of diphtheria, one of membranous croup, 14 of erysipelas, and 8 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of March, 1907.

Mean Height of Barometer	-	-	30.107 inches.
Maximal Height of Barometer (23rd, at 9 a.m.)	-	-	30.482 „
Minimal Height of Barometer (16th, at 8 30 p.m.)	-	-	28.794 „
Mean Dry-bulb Temperature	-	-	45.3°.
Mean Wet-bulb Temperature	-	-	42.5°.
Mean Dew-point Temperature	-	-	39.2°.
Mean Elastic Force (Tension) of Aqueous Vapour	-	-	.241 inch.
Mean Humidity	-	-	80.3 per cent.
Highest Temperature in Shade (on 27th)	-	-	64.1°.
Lowest Temperature in Shade (on 31st)	-	-	31.8°.
Lowest Temperature on Grass (Radiation) (23rd)	-	-	28.9°.
Mean Amount of Cloud	-	-	43.2 per cent.
Rainfall (on 19 days)	-	-	1.934 inches.
Greatest Daily Rainfall (on 19th)	-	-	.742 inch.
General Directions of Wind	-	-	-S.W., W., N.W.

Remarks.

A warm, but changeable and showery, March. The month opened and closed with mild weather. During the greater part of the time an anticyclonic distribution of atmospheric pressure was observed over the southern half of the British Isles, France and Germany. This accounted for the prevalent S.W. and W. winds and the frequent showers which fell in Ireland. A notable exception to anticyclonic conditions occurred on the 16th, when a deep depression passed across Ireland, and the barometer fell to 28.794 inches in Dublin. On the 19th there was a heavy rainfall in the metropolitan county, but the amounts registered were widely different—at Glasnevin, .86 inch; Fitzwilliam Square, .742 inch; the Ordnance Survey Office, Phoenix Park, .740 inch; Trinity College, .713 inch; Leeson Park, .555 inch; Killiney, .47 inch; Dundrum, .46 inch; and Stillorgan, .404 inch.

After a stormy period, which ended on the 20th, the weather was chiefly fine and quiet to the close of the month, and the absence of cloud, which was remarkable, led to a wide diurnal range of temperature—on the 28th the thermometer passed through 35° at Bath and Oxford, and even in Dublin the range

was 23.1° on the 27th and 21.8° on the 29th. A fine display of aurora borealis was seen on the evening of the 21st.

In Dublin the arithmetical mean temperature (46.5°) was 2.9° above the average (43.6°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 45.3°. In the forty-two years ending with 1906, March was coldest in 1867 and 1883 (M.T. = 39.0°), and warmest in 1903 (M.T. = 48.1°). In 1906 the M.T. was 44.4°.

The mean height of the barometer was 30.107 inches, or 0.191 inch above the corrected average value for March—namely, 29.916 inches. The mercury rose to 30.482 inches at 9 a.m. of the 23rd and fell to 28.794 inches about 8.30 p.m. of the 16th. The observed range of atmospheric pressure was, therefore, 1.688 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 45.3°. Using the formula, $\text{Mean Temp.} = \text{Min.} + (\text{Max.} - \text{Min.} \times .485)$, the M.T. becomes 46.3°. The arithmetical mean of the maximal and minimal readings was 46.5°, compared with a thirty years' (1871–1900) average of 43.6°. On the 27th the thermometer in the screen rose to 64.1°—wind, S.W.; on the 31st the temperature fell to 31.8°—wind, W.N.W. The minimum on the grass was 28.9°, on the 23rd.

The rainfall was 1.934 inches, distributed over 19 days. The average rainfall for March in the thirty-five years, 1866–1900, inclusive, was 1.950 inches, and the average number of rainy days was 16.0. The rainfall, therefore, was very slightly below, while the rainy days were above, the average. In 1867 the rainfall in March was very large—4.972 inches on 22 days. On the other hand, the smallest March rainfall was .288 inch on 8 days in 1893. In 1900, only .963 inch fell on 13 days. In 1906 the rainfall was 1.520 inches on 17 days.

The atmosphere was foggy in the city on the 2nd, 9th, 23rd, 24th, 25th, 27th, and 31st. High winds were noted on 14 days, reaching the force of a gale on 7 occasions—namely, the 7th, 13th, 16th, 17th, 18th, 19th and 20th. Snow or sleet occurred on the 19th; hail fell on the 18th and 20th. Aurora borealis was seen on the 21st and 30th. Thunder was heard on the 31st. A solar halo appeared on the 10th, and a lunar corona on the 28th. Temperature reached or exceeded 50° in the screen on 25 days, compared with 17 days in 1906, 20 in 1905, 10 in 1904, 18 in 1903, 23 in 1902, only 6 in 1901, only 5 in 1900, 19 in 1899, 9 in

1898, 14 in 1897, and 21 in 1896. It fell to 32° in the screen on only one night—the 31st—and on the 27th it rose to 64.1° , and on the 29th to 63.3° . The minima on the grass were 32° or less on 9 nights, compared with 12 nights in 1906, 8 nights in 1905, 13 in 1904, 4 in 1903, 5 in 1902, 11 in 1901, 14 in 1900, 13 in 1899, 15 in 1898, 9 in 1897 and 8 in 1896.

The rainfall in Dublin during the three months ending March 31st amounted to 3.666 inches on 42 days, compared with 7.291 inches on 59 days in 1906, 5.378 inches on 46 days in 1905, 7.938 inches on 55 days in 1904, 9.126 inches on 61 days in 1903, 5.114 inches on 43 days in 1902, 5.656 inches on 46 days in 1901, 6.698 inches on 63 days in 1900, only 1.650 inches on but 32 days in 1899, and a thirty-five years' (1866-1900 inclusive) average of 6.170 inches on 50.0 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. William J. Good, reports that the mean height of the barometer was 30.104 inches, the highest reading observed being 30.480 inches at 9 p.m. of the 11th, the lowest, 28.922 inches at 9 p.m. of the 16th. The mean temperature was 45.9° , the mean dry-bulb reading at 9 a.m. and 9 p.m. being 46.0° . The screened thermometers rose to 64.3° on the 29th, and fell to 31.3° on the 31st. The grass minimum was 22.2° on the 3rd, while the black bulb *in vacuo* rose in the sun to 109.2° on the 27th. The mean daily maximum was 53.1° ; the mean daily minimum, 38.7° ; and the mean daily minimum on the grass, 31.7° . Rain fell on 16 days to the amount of 1.853 inches, .713 inch being measured on the 19th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 137.6, giving a daily average of 4.4 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was 44.0° ; at a depth of 4 feet, it was 44.2° . During the month the subsoil temperature at 4 feet increased from 42.5° on the 1st to 45.9° on the 31st.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, 1.310 inches of rain fell on 14 days. The maximal fall in 24 hours was .510 inch on the 19th.

At Clonsilla, Greystones, Dr. Arthur G. Price recorded a rainfall of 1.35 inches on 14 days, the maximum in 24 hours being .52 inch on the 19th. The mean temperature of the month

was 46°, the extremes being—lowest, 32°, on the 2nd, 30th and 31st; highest, 62°, on the 27th. The total rainfall at Clonsilla, Greystones, since January 1, equals 3.190 inches on 36 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 18 days to the amount of 1.62 inches, compared with 2.20 inches on 13 days in 1901, 1.98 inches on 18 days in 1902, 4.53 inches on 28 days in 1903, 2.50 inches on 21 days in 1904, 3.31 inches on 28 days in 1905, and 1.80 inches on 17 days in 1906. The greatest daily rainfall was .46 inch on the 19th. The temperature in the shade ranged from 60° on the 27th and 29th to 33° on the 23rd. The mean shade temperature was 46.3°, compared with 41.2° in 1901, 46.4° in 1902, 45.7° in 1903, 44.1° in 1904, 45.0° in 1905, and 43.9° in 1906. Since January 1st, 1907, the rainfall at this station amounts to 3.45 inches on 38 days, compared with 6.71 inches on 40 days in the first quarter of 1901, 7.02 inches on 43 days in 1902, 11.36 inches on 62 days in 1903, 10.14 inches on 67 days in 1904, 6.76 inches on 56 days in 1905, and 8.67 inches on 56 days in 1906.

At White Cross, Stillorgan, Miss Muriel O'Sullivan measured 1.333 inches of rain on 20 days, the maximum in 24 hours being .404 inch on the 19th. At this station the rainfall in the first quarter of 1907 equals 2.958 inches on 41 days, compared with 6.398 inches on 48 days in 1905, and 7.810 inches on 56 days in 1906.

Dr. C. Joynt, F.R.C.P.I., returns the rainfall at 21 Leeson Park, Dublin, as 1.727 inches on 18 days, .555 inch being measured on the 19th.

The rainfall at Cloneevin, Killiney, Co. Dublin, as returned by Mr. Robert O'B. Furlong, C.B., was 1.53 inches on 17 days, compared with 1.52 inches on 18 days in 1906, 3.42 inches on 21 days in 1905, 2.01 inches on 17 days in 1904, 3.40 inches on 29 days in 1903, 1.50 inches on 21 days in 1902, 1.57 inches on 17 days in 1901, and a twenty-two years' (1885-1906) average of 1.912 inches on 16.7 days. The maximum in the 20 years was 3.59 inches, in 1888; the minimum was .26 inch, in 1893. The heaviest fall in 24 hours was .47 inch on the 19th. At this station the total rainfall since January 1 was 3.27 inches on 35 days, compared with 6.91 inches on 57 days in the first quarter of 1906. In the first quarter of 1891 only 1.24 inches of rain fell on 26 days.

Mr. T. Bateman returns the rainfall at the Green, Malahide,

Co. Dublin, as 1.677 inches on 15 days, compared with 3.473 inches on 24 days in 1905, and 1.071 inches on 15 days in 1906. The greatest rainfall in 24 hours was .488 inch on the 16th. The extremes of temperature in the shade were—highest, 57°, on the 25th; lowest, 29°, on the 30th; the mean temperature being 43.1°.

Mr. W. Miller registered 1.13 inches of rain at Cork on 15 days. The greatest fall in 24 hours was .50 inch on the 16th. The rainfall was 1.54 inches in defect of the average for March. The rainfall of the first quarter of 1907 was 4.06 inches, or 6.24 inches less than the average.

The Rev. Arthur Wilson, M.A., writing from Dunmanway Rectory, Co. Cork, states that 2.48 inches of rain fell there in March on 18 days, .80 inch being measured on the 16th, .42 inch on the 15th, and .27 inch on the 17th.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 17 days to the total amount of 2.398 inches, the largest measurement being .740 inch on the 19th. The duration of bright sunshine was 152.7 hours, of which 11.3 hours occurred on the 29th.

“AURORA HEADACHE.”

A BRILLIANT aurora appeared two or three weeks ago, and it happened curiously (writes “Xrayser” in *The Chemist and Druggist*) that both the Birmingham and Leeds correspondents of this journal mentioned that coincidentally with the phenomenon the chemists of those cities had a run on remedies for nervous headaches, supposed to be caused by, or at least associated with, the magnetic disturbance which is either occasioned by the aurora or occasions it. I do not find in the few medical works just now available to me any allusion to an aurora headache, but if such a thing is recognised by the faculty, it seems to bring us within measurable distance of the theory of a magnetic fluid which Mesmer made so famous a century or more ago, and which Paracelsus, van Helmont and other so-called quacks had vigorously insisted upon long before Mesmer.—*The Prescriber*, April, 1907.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

"Xaxa."

"XAXA" is a brand name by which Messrs. Burroughs, Wellcome & Co. designate acetyl-salicylic acid as issued by them. "Xaxa" possesses the therapeutic value justly attributed to salicylic acid and the salicylates, without the attendant disadvantages of digestive disturbance, circulatory depression and nervous effects which sometimes follow their administration. It is insoluble in the acid juice of the stomach and passes unchanged into the intestine; in the alkaline secretions of the intestine the salicylic acid is liberated and gradually absorbed without causing any cumulative effects.

The following tabloids containing "Xaxa" have been put on the market by Messrs. Burroughs, Wellcome & Co. :—

"*Tabloid*" "Xaxa" (*Acetyl-salicylic Acid*), gr. 5 (0.324 gm.).—Dose—One to five, swallowed with water, twice or thrice daily, after food. For the relief of pain, fifteen grains may be prescribed as a first dose, with further doses, if necessary, of ten grains at intervals of one hour or one hour and a half, until three or four doses in all have been taken.

"*Tabloid*" "Xaxa" *et Pulv. Ipecac. Comp.*, āā gr. 2½ (0.162 gm.).—The diaphoretic and anodyne effects of Dover powder are of the greatest service in the early part of the year. The combination with "Xaxa" increases the therapeutic value of Dover powder and prevents the headache and nausea which follow its administration alone. Dose—One to four, swallowed with a little water.

"*Tabloid*" "Xaxa" *et Phenacetini*, āā gr. 2½ (0.162 gm.).—An excellent combination of "Xaxa" with an analgesic and antipyretic. Dose—One to four, swallowed with a little water.

"*Tabloid*" "Xaxaquin" (*Quinine Acetyl-salicylate*), gr. 3 (0.194 gm.).—This new quinine salt combines the therapeutic activities of quinine and acetyl-salicylic acid, and possesses advantages over quinine salicylate similar to those of "Xaxa" over salicylic acid. Dose—One to two, swallowed with a little water, after food.

"*Tabloid*" "Xaxa" *et "Xaxaquin"*—R̄ "Xaxa," gr. 3 (0.194 gm.); "Xaxaquin," gr. 2 (0.13 gm.).—Presents the valuable antiseptic, antipyretic and specific properties of the salicylates,

without their disadvantages, combined with the antiperiodic and antipyretic effect of quinine. Uses—Both as a prophylactic and in the early stages of catarrh and influenza, this combination is very valuable. In tonsillitis, gout, rheumatism, malaria and other fevers, the product exerts a beneficial effect. It relieves pain, reduces fever and combats the infection. Dose—One to three, swallowed with a little water after food.

Therapeutic Novelties.

MESSRS. PARKE, DAVIS & CO., 111 Queen Victoria Street, London, E.C., have recently introduced the following preparations to the notice of the medical profession :—

Iodalbin.—Iodalbin is an iodo-proteid compound containing 21.5 per cent. of iodine. It is in the form of an almost tasteless powder, insoluble in water, acids or alcohol, but readily soluble in alkaline solutions. When administered it passes unchanged through the stomach and is gradually absorbed in the intestine, thus avoiding the gastric irritation that the alkaline iodides are liable to excite, and also ensuring a milder systemic effect. Experiments on animals show the presence of iodine in the saliva very shortly after its administration, but very little can be traced in the faeces. Several months of close clinical observation demonstrate that iodalbin produces the typical alterative effect of the organic iodides without their disadvantages. Iodalbin may therefore be advantageously prescribed in preference to the alkaline iodides in all cases where such treatment is indicated. A comparatively small dose, 5 to 10 grains, is sufficient, though many patients have taken as much as 60 grains per diem without untoward effects. Iodalbin may be obtained in bottles of one ounce, and in capsules (each 5 grains) in bottles of 25 and 100.

Nutritive Liquid Peptone.—A palatable nutritious restorative presenting prime beef reduced to peptone, free from bitterness, by means of brometone—the proteid-digesting ferment of pine-apple juice—in association with extract of malt of high diastasic power. The combination is a true food in an easily assimilable form, allied with gently stimulating properties. In critical illnesses it may be relied upon to maintain nutrition for days, and in tuberculosis, anæmia, marasmus, and convalescence from debilitating diseases it is a valuable means of promoting nutrition. It is an excellent means also of maintaining strength in lactation. The ordinary dose is from one to two tablespoonfuls.

Nutritive Liquid Peptone with Creosote.—This is nutritive liquid peptone with the addition of $1\frac{1}{2}$ minims of beechwood creosote and $\frac{1}{4}$ minim of guaiacol to each fluid ounce. These additions make far greater usefulness in gastric disorders, such as summer diarrhoea, flatulence, &c., providing antiseptic treatment and non-irritating nutriment. In tuberculosis, phthisis and chronic bronchitis its administration improves nutrition, stimulates appetite and lessens cough. The dose is from one teaspoonful to one tablespoonful.

Compressed Tablets Phenol-phthalein Compound.—Each of these tablets (No. 509) contains 1 grain of phenol-phthalein, $\frac{1}{800}$ grain strychnin sulphate, and $\frac{1}{100}$ grain of extract of belladonna leaves. The laxative effect of phenol-phthalein is well known, it is reputed to be particularly well adapted for use in habitual constipation, acting without pain or tenesmus. The addition of strychnin and belladonna are valuable auxiliaries, giving tone to the intestinal tract and restoring natural functions. The sugar-coated tablet is a particularly acceptable as well as convenient mode of prescribing these drugs. The dose for adults is from 3 to 5 tablets at bed-time; for children and delicate women, from 1 to 3 tablets will be sufficient. The tablets are dispensed in bottles of 100, 500 and 1,000.

PERISCOPE.

LITERARY NOTE.

MESSRS. W. B. SAUNDERS COMPANY, Publishers, 9 Henrietta Street, Covent Garden, London, W.C., and Philadelphia, have brought out a revised edition of their illustrated catalogue of medical, surgical and scientific publications. This catalogue is produced in an elaborate and attractive style, and contains, in addition to full particulars of the books listed, reduced specimens of the illustrations, representative of the pictorial features of the works from which they are taken. We understand that a copy will be sent post free on request.

RADIO-ACTIVITY OF MINERAL WATERS.

THE waters of a number of Spanish mineral springs have been examined, with the result that nearly all have been found to be distinctly radio-active. Certain of these waters contain nitrogen,

which has hitherto been believed to be the source of their therapeutic action; this action is now attributed to radio-activity. The waters are most active when fresh, and lose their radio-activity very appreciably on keeping. It is believed that this property is obtained from the radio-active minerals through which the water percolates before reaching the spring.—*Journ. Chem. Soc.*, and *The Prescriber*, April, 1907.

STEGOMYIA CALOPUS, THE YELLOW FEVER MOSQUITO.

WE are informed that "*Stegomyia calopus*" has been adopted by the Public Health and Marine Hospital Service and by the Bureau of Entomology, Department of Agriculture, as the official name of the yellow fever mosquito. In the matter of nomenclature, this insect has undergone many vicissitudes. Among the names by which it has been known, *Culex fasciatus*, *Culex calopus* and *Stegomyia fasciata* are the most familiar. The mosquito, since recognised as responsible for the spread of yellow fever, was originally classified as a culex, and received over a century ago the title *Culex fasciatus*, a name previously bestowed on an insect not identical with the one in question. The term *Culex calopus* was proposed somewhat later, and with the recent transference of this mosquito to the genus *Stegomyia* the name *Stegomyia calopus* resulted.—*Journal of the American Medical Association*, April 13, 1907.

BUTTERMILK AS INFANT FOOD.

A. STRAUCH, of Chicago, has had excellent results from the use of buttermilk in the feeding of infants. His experience includes more than twenty cases, mostly of malnutrition, resulting from chronic gastro-intestinal disturbances, with occasional acute exacerbations up to the intensity of cholera infantum; one case of habitual vomiting (pylorospasm), one case of icterus catarrhalis, one prematurely born child, and some cases of *alaitement mixte*. Some of these cases had not responded to other methods of feeding and treatment.—*Medical Record*, New York, March 30, and *Journal of the American Medical Association*, April 13, 1907.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

JUNE 1, 1907.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XV.—*Our Debt to Ireland in the Study of the Circulation.**

By GEORGE A. GIBSON, M.D., Sc.D., LL.D.; Physician to the Royal Infirmary, Edinburgh.

(Concluded from page 345.)

As regards drugs in the treatment of heart disease, the number of contributions is not large, but extremely valuable. The actions and uses of digitalis were fully discussed by several observers. Little^b called attention to the extreme value of this drug in the weak heart of acute disease, and Grimshaw^c followed immediately afterwards with a paper upon the weak heart of typhus fever. Both these authors are to be congratulated on having added observations of much value upon an important subject. Peacocke^d in recent years reviewed the subject of digitalis, and emphasised its value in cardiac disease. One paper of considerable value on the employment of mercury in heart disease was contributed

* An Address delivered before the Medical Section of the Royal Academy of Medicine of Ireland, Friday, December 7, 1906.

^b Dublin Journal of Medical Science. 1873. Vol. LV. P. 245.

^c *Ibid.* 1873. Vol. LV. P. 579.

^d *Ibid.* 1900. Vol. CIX. P. 256.

by Beatty,^a which is of much interest. A lecture of particular importance and especial utility on the treatment of heart disease in general, by Little,^b merits more than a passing reference. The author deals with patients from the point of view of age, dividing them into young, middle-aged, and elderly; he then reviews the causes of heart failure; he finally discusses very fully the various remedies we possess for meeting the different exigencies. It is of much interest to note that, in addition to the careful regulation of rest and exercise, food and drink, the author expresses his special approval of blood-letting, mercury and digitalis; he urges the importance of Baillie's pill—which erroneously receives the name of Guy in our days; he does not consider strophanthus as being so useful as digitalis, and he has doubts about the efficacy of alcohol and arsenic. Restlessness and sleeplessness are fully discussed, and Little urges the use of opium or morphine, the modern employment of which he rightly attributes to Clifford Allbutt.^c Conditions of high pressure receive adequate attention, and means of combating them are carefully described. In connection with angina pectoris, the author emphasises the importance of the iodides.

In the third and concluding part of this address it is my intention to trace the growth of our knowledge in respect of two particular subjects connected with the circulation, upon both of which the contributions of Ireland have been of the highest value. The first of these is concerned with the action of the valves on the right side of the heart, and their relation to those of the left. As is widely known, Galen^d was of opinion that the tricuspid was more powerful than the mitral valve, being obviously led to this conclusion by the fact of its having an additional cusp. This error remained until the advent of Harvey, who most clearly showed that the valves on the left side of the heart are more accurately closed

^a Dublin Journal of Medical Science. 1899. Vol. CVIII. P. 257.

^b Lecture on the Resources of the Physician in the management of Chronic Disease of the Heart. Dublin. 1894.

^c The Practitioner. 1869. Vol. III. P. 342.

^d De usu partium, Lib. VI., Cap. 14, et 14. Edit. Kühn. Lipsiae. 1822. Vol. III. P. 476.

than their fellows on the right. His words are so clear in regard to this matter that they deserve to be recalled :—
 “ Ideo in sinistro ventriculo, uti ad majorem impulsione[m] diligentior oclusio fiat : duo tantum sunt instar mitræ, ut exactissime claudantur et longe in conum per medium pertinentes (quæ res imposuit fors[an] Aristoteli ut hunc ventriculum duplicem sectione per transversum facta existimaret) similiter profecto ne retro in arteriam venosam labatur sanguis, et exinde robur sinistri ventriculi exoluatur, in propellendo per universum corpus, ideo valvulæ istæ mitrales molo, et robore, et exacta clausura, illas in dextro positas exuperant.”^a

Hunter,^b from anatomical researches, proved that the conception of Harvey was correct, and Adams,^c in that wonderful contribution to which reference has already been made, amply illustrated and emphasised this conception. His work, indeed, placed the whole subject upon such a footing as to render it beyond all doubt that Nature has intended to permit an easy escape through the valves of the right side of the heart; when exposed to any severe stress. In a paper often quoted since, King^d described what he termed the safety-valve function of the tricuspid orifice. With the exception of the philosophical observations of Adams and King, the most valuable contribution to this particular subject is that of Stokes.^e

In addition to the statement of his views in the section of his work on affections of the right side of the heart Stokes^f has the following clear enunciation in the *recapitulation* at the end of the chapter :—

“ 24. That the most frequent result of disease of the right auriculo-ventricular valves is but the exaggeration of their natural insufficiency.”

^a *Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus*. Frankfort. 1628. P. 67.

^b *A Treatise on the Blood, Inflammation and Gunshot Wounds*. 1794. P. 162.

^c *Loc. cit.*

^d *Guy's Hospital Reports*. 1837. Vol. II. P. 104.

^e *The Diseases of the Heart and the Aorta*. 1854. P. 167.

^f *Op. cit.* P. 234.

On the Continent of Europe Gouraud^a was probably the earliest to make any independent observations upon this subject; these, however, have been comparatively little noticed.

Such were the observations which had been made up to the time when the matter attracted my attention. It occurred to me that it might serve a useful purpose to discover experimentally what amount of pressure would be necessary to bring about incompetence of the valves on the right side of the heart.^b The experiments were carried out by means of a column of fluid—a solution of sodium chloride of 1050 specific gravity at 98.5° Fahrenheit—brought to bear upon the cusps under investigation. The general results showed “that from the semilunar valves of the pulmonary artery of the sheep a strong jet escaped until the column of fluid reached fourteen and a half inches, from which height it trickled until the valves became competent with a column of nine inches. In the ox a strong jet was emitted down to twelve inches, and dropping of the fluid reduced the superincumbent column to the height of six inches, when competence was established. In the healthy human heart a jet escaped down to thirteen inches, and the valves were competent with eight inches of fluid resting on them. Now, in each case of the pulmonary valves, with a column of fluid exceeding six feet in height, perfect competence was obtained in a very simple manner by constricting the pulmonary artery. A cord tied round the artery exactly at the attachment of the valves gave the means of perfect control over the escape, so that, by varying the amount of tightening, the jet was converted into a drop falling quickly or slowly, and this in turn was totally stopped. The whole diminution of circumference only amounted to a few lines. This shows clearly that the escape is caused by distension of the elastic artery and relative incompetence of the valves.

“From the tricuspid valves of the sheep a strong triangular

^a De l'influence pathogénique des Maladies Pulmonaires sur le Cœur droit. 1865. P. 25.

^b Edinburgh Medical Journal. 1880. Vol. XXV. P. 982.

jet spouted out, with a column of fluid over thirteen inches in height, and from this point the fluid slowly escaped by flowing over the valves until all escaped. In the ox the jet ceased when the column of fluid fell to ten inches, and from this point the fluid likewise ran out. In the healthy human heart the triangular jet gushed out until there were twelve inches of fluid left, and then the remainder flowed over the valves. The valves closing the right auriculo-ventricular orifice, therefore, seem always incompetent after death. Now, it is quite evident that experiment on the heart after death cannot be applied rigidly in explanation of action before death, yet a certain amount of light may be thrown thereby on it. Such experiments show with certainty that the orifices of the right side of the heart are not closed so perfectly as those of the left, and point to the ease with which they probably allow escape with any supernormal pressure."

The correctness of these views as regards the pulmonary valve has been amply proved by the later clinical observations of Graham Steell,^a Dyce Duckworth,^b Barr,^c and myself.^d Each of us has placed on record instances of purely functional pulmonary incompetence from high pressure in the pulmonary artery, and the matter may be dismissed as of universal recognition. As regards the tricuspid orifice, there is considerable divergency of opinion, but my statement^e that regurgitation at the tricuspid orifice—formerly regarded as infrequent—is now admitted to be the most common valvular affection has been generally accepted, notwithstanding the contrary opinion of Babcock.^f It certainly is accepted by those writers whose work is held in highest esteem. Tricuspid incompetence is often proved by nothing more than a slight

^a *Physical Signs of Cardiac Disease*, 1881, p. 43; and *Medical Chronicle*, 1889, Vol. IX., p. 182.

^b *British Medical Journal*. 1888. Vol. I. P. 246.

^c *Liverpool Medical and Chirurgical Journal*. 1894. P. 64.

^d *Edinburgh Hospital Reports*, 1894, Vol. II., p. 332; and *Diseases of the Heart and Aorta*, 1898, pp. 571 and 580.

^e *Diseases of the Heart and Aorta*. 1898. P. 610.

^f *Diseases of the Heart and Arterial System*. 1903. P. 343.

systolic murmur in or about the conventional area of auscultation, but there are frequently other attendant appearances, especially connected with the veins of the neck. There cannot be a doubt that Mackenzie^a is perfectly correct in his contention that tricuspid incompetence may co-exist with every gradation of venous pulsation in the jugular veins, from a perfectly normal auricular type to the most pronounced ventricular reflux. It is undoubtedly disappointing to find, however, that in some of the most modern works published in certain countries, the facts just mentioned have scarcely yet received adequate recognition. Rosenbach,^b for example, recognises the existence of relative incompetence, but seems not to consider it more common on the right than on the left side of the heart; in fact, he speaks of isolated tricuspid incompetence as very rare. He, nevertheless, acknowledges the utility of escape at the tricuspid orifice in left-sided disease. Although von Jürgensen^c allows relative incompetence to be more common at the tricuspid orifice than elsewhere, he yet states that, with very rare exceptions, incompetence of the tricuspid valve is only part of general cardiac inadequacy. Krehl^d undoubtedly shows a good grasp of the principles of muscular inadequacy, but he does not appear to appreciate how much more common relative incompetence is on the right side of the heart than on the left. According to Romberg^e tricuspid incompetence is almost always associated with other valvular lesions, but he apparently does not know of any regurgitation at this orifice except that which is accompanied by the ventricular venous pulse, and fails to recognise the significance of Mackenzie's demonstration that the auricular merges gradually into the ventricular venous pulse, the tricuspid valves being incompetent throughout.

^a The Study of the Pulse. 1902. P. 188.

^b Grundriss der Pathologie und Therapie der Herzkrankheiten. 1899. S. 135 and 218.

^c Nothnagel's Spezielle Pathologie und Therapie. 1903. Band XV. I. Theil. S. 20 and 143.

^d Pathologische Physiologie. 1904. Dritte Auflage. S. 15 and 24.

^e Lehrbuch der Krankheiten des Herzens und der Blutgefäße. 1906. S. 191.

It seems to me rather doubtful whether Hirschfelder,^a in an extremely good paper recently published, has really grasped the significance of Mackenzie's observations on the existence of tricuspid regurgitation with simple auricular as well as retrograde ventricular venous pulsation. Preble^b is in a much worse case, for he appears to me absolutely ignorant of all the work which has been done on the subject of relative incompetence of the valves of the right side of the heart. Albrecht^c comes much more nearly to a correct understanding than any other modern German author, and attributes the greater frequency of the right-sided incompetence to two causes—first, a deficiency in the sphincter surrounding the tricuspid orifice; and secondly, the comparative shortness of the cusps. From these references it is, therefore, clear that a certain number of modern observers are still considerably behind Adams and the other early workers in our own country upon this subject.

The esoteric meaning of the condition is to be found in the observations of Gaskell, Keith, and Mackenzie. In Gaskell's remarkable paper^d on the functions of the heart he pointed out that these must be subdivided into rhythmicity, conductivity, excitability, contractility, and tonicity. The function of tonicity has been analysed very fully in the beautiful investigations of Keith,^e and applied to the elucidation of the pathological problems connected with the heart. He has shown that certain of the fibres in the lower vertebrates have not only discharging but regulating fibres which can maintain their tonicity even after the ventricular fibres have passed into a state of diastole. He holds that this seems to be the case also in the mammalian heart. From the clinical point of view changes in the function of tonicity have been most carefully studied by James Mackenzie.^f Mackenzie has been able to prove, moreover, in his admirable book, that, as

^a American Journal of Medical Science. 1906. Vol. CXXXII. P. 378.

^b *Ibid.* 1906. Vol. CXXXII. P. 393.

^c Der Herzmuskel. 1903. S. 523.

^d Journal of Physiology. 1883. Vol. IV. P. 43.

^e Lancet. 1904. Vol. I. P. 703.

^f British Medical Journal. 1905. Vol. II. P. 1689.

previously mentioned, tricuspid incompetence may be associated with every degree of venous pulsation.^a The labours of these three distinguished observers form, as it were, a fitting crown to the edifice of which the remarkable observations of the great Adams may be said to have been the foundation.

The other special subject appears to me an even better example of my theme—the growth of knowledge in modern times arising from observations made in Dublin. It is that of the complex of symptoms first described by Adams and by Stokes, and now very commonly associated with their names. As is now universally recognised, Adams^b described a remarkable infrequency of the pulse, attended by repeated apoplectic attacks, in cases which presented the pathological appearances of fatty heart. Stokes,^c as is equally well known, extended these observations, and was the earliest to observe the want of synchronism between the movements of the veins and the heart. Stokes says:—"A new symptom appeared—namely, a remarkable pulsation in the right jugular vein. This was most evident when the patient lay down. The number of the reflex pulsations was difficult to be established, but they were more than double the number of the manifest ventricular contractions. About every third pulsation was strong and sudden, and could be seen at a distance; the remaining waves were much less distinct, and some very minor ones could be perceived. These may have possibly corresponded with those imperfect contractions already noticed in the heart." It is of the greatest interest to remark that Stokes heard feeble sounds between the cardiac impulses. In all probability some of these were due to auricular action. Another most interesting point in regard to this case is that the patient discovered for himself that if there was any threatening of a cerebral attack it could be warded off by turning on the hands and knees and keeping the head low.

For many years after the date of Stokes's observations no

^a *Loc. cit.*

^b *Loc. cit.*

^c *Loc. cit.*

further notice, except a passing reference by Skoda,^a was taken of the matter, but, in 1868, Leyden^b aroused new interest in the subject, and was followed by Roy.^c The opinions of these observers were in favour of hemisystole as the cause of the asynchronous action of the veins and arteries. Meantime, the epoch-making work of Gaskell^d occurred, proving that interference with the conduction of impulses from the auricle to the ventricle is possible, or, as he himself puts it, "that a block can be produced, either by artificial section of the auricle or by an increase in the natural block at the auriculo-ventricular junction, such that only every second contraction which starts from the sinus passes over the block."^e Chauveau^f analysed a case showing the dissociation of auricular and ventricular rhythm. Vaquez and Bureau,^g in an excellent study of cardiac, radial, and jugular pulsations, showed that there was a want of harmony between the auricles and the ventricles. Moritz^h pointed out that the small pulsations in a cardiogram, occurring at the same time as the elevations in a jugular pulsation, were due to auricular contraction. Hisⁱ demonstrated that the heart-block could be caused by a lesion of the ventricles, by interference with the vagus nerve, or by damage to the conducting fibres. Lichtheim^j published tracings from a case in which three jugular pulsations occur for each apical and radial impulse. Mackenzie^k clearly demonstrated complete heart-block, and attributed the little waves in the radial tracing to auricular systole—an explanation fully accepted by Wenckebach.^l

^a Treatise on Auscultation and Percussion. Translated by W. O. Markham. 1853. P. 158.

^b Virch. Arch., 1868, Band XLIV., s. 365; and 1875, Band LXV., s. 153.

^c Edinburgh Medical Journal. 1878. Vol. XXIII. P. 594.

^d Journal of Physiology. 1883. Vol. IV. P. 43.

^e *Op. cit.* P. 121.

^f Rev. de Méd. Paris. 1885. Tome V. P. 161.

^g Comptes rend. Soc. de Biol. Paris. 1893. P. 170.

^h St. Petersburg. med. Wehnschr. 1897. P. 301.

ⁱ Deut. Arch. klin. Med. 1899. Bd. LXIV. S. 316.

^j Deut. med. Wehnschr. 1902. Bd. XXVIII. Ver. Beitr. S. 69.

^k British Medical Journal. 1902. Vol. II. P. 1411.

^l Die Ahythmie, 1903, S. 148; and Arch. Anat. u. Phys., Phys. Abt., 1906, S. 297.

Similar facts have also been published by Osler,^a myself,^b Erlanger,^c Gossage,^d Ritchie,^e Hering,^f Schmoll,^g Hay,^h Rihl,ⁱ Belski,^j Leuchtweis,^k Finkelnburg,^l and Magee Finny.^m All the authors who have been mentioned are clearly of opinion that the cause of the appearances lies in the existence of heart-block. It is only right to add that Hoffmannⁿ is somewhat doubtful about the occurrence of heart-block in such cases, while Webster^o is rather in favour of an abortive systole of the ventricle as their cause, and Jaquet^p is absolutely antagonistic to the theory of heart-block.

In addition to the investigation of the movements in those cases by the graphic method, it is of interest to dwell for one moment upon the sounds which have been heard by several of us who have been engaged in observing cases of the kind. The existence of auricular sounds was demonstrated by Malet and myself.^q In most cases of heart-block which have been under my observation during the last five years these auricular sounds have usually been present, and by many of the observers just mentioned the sounds produced by the auricular systole have also been recognised.

Another important means of investigation is to be found

^a *Lancet*. 1903. Vol. II. P. 516.

^b *The Nervous Affections of the Heart*, Edinburgh, 1904, p. 61; and *Edinburgh Medical Journal*, 1905, New Series, Vol. XVIII., p. 9.

^c *Journal of Experimental Medicine*. 1905. Vol. VII. P. 676.

^d *Transactions Clinical Society London*. 1905 Vol. XXXVIII. P. 187.

^e *Proceedings of Royal Society Edinburgh*. 1905. Vol. XXV. P. 1085.

^f *Zeitschft. für exper. Path. und Ther.*, 1905, Band II., s. 75; and 1906, Bd. III., s. 511.

^g *Deut. Arch. klin. Med.* 1906. Bd. LXXXVII. S. 554.

^h *British Medical Journal*, 1905, Vol. II., p. 988; *Lancet*, 1906, Vol. I., pp. 139 and 239; and *Liverpool Medico-Chirurgical Journal*, 1906, p. 66.

ⁱ *Zeitschft. für exp. Path. und Ther.* 1905. Band II. S. 83.

^j *Zeitschft. klin. Med.* 1905. Bd. LVII. S. 529.

^k *Deut. Arch. klin. Med.* 1906. Bd. LXXXVI. S. 456.

^l *Ibid.* 1906. Bd. LXXXVI. S. 462.

^m *Dublin Journal of Medical Science*. 1906. Vol. CXXI. P. 321.

ⁿ *Zeitschft. klin. Med.* 1900. Bd. XLI. S. 357.

^o *Glasgow Hospital Reports*. 1901. Pp. 420 and 454.

^p *Deutsches Arch. klin. Med.* 1902. Bd. LXII. P. 77.

^q *Journal of Anatomy and Physiology*. 1880. Vol. XIV. P. 1.

in radiography. Magee Finny,^a Brouardel and Villaret,^b and Ritchie,^c independently of each other, took advantage of the fluorescent screen in order to watch the movements of the heart, and in their three contributions to the subject they published the interesting fact that the auricles could be seen beating several times in the intervals between ventricular systole. This fact has been verified in several cases by myself, as mentioned in the debate at Toronto last year.^d

The electro-motive changes produced by the systole of the heart have furnished another means of investigation. Einthoven,^e by means of his string galvanometer, has obtained in heart-block beautiful tracings, which show the electro-motive changes caused by the action of the auricles entirely dissociated from those caused by ventricular action. At the same time, but in ignorance of Einthoven's important investigations, the subject of electro-motive changes in heart-block also engaged my attention.^f My own observations were carried out by studying the electric variations with Lippmann's capillary electrometer. The movements of the column of mercury, when thrown upon the screen by means of a projection microscope, show the ordinary oscillations caused by the electric changes accompanying the apex beat, and between these other smaller waves are distinctly visible, which are clearly due to the electro-motive changes produced by the auricles.

Another point which has attracted my attention is the investigation of blood pressure in heart-block.^g The result of observations on four or five cases is to show that the systolic pressure may be as high as 270, while the diastolic may at the same time be as low as 75 mm. Hg. This is assuredly a most interesting fact, showing that the long interval of

^a *Loc. cit.*

^b Arch. de Méd. Expér. 1906. Tome XVIII. P. 230.

^c *Loc. cit.*

^d British Medical Journal. 1906. Vol. II. P. 1113.

^e Arch. Néerland. des Sc. Exactes et Naturelles. Sér. II. Tome XI. P. 239.

^f British Medical Journal. 1906. Vol. II. P. 22.

^g *Ibid.* 1906. Vol. II. P. 1113.

time following each ventricular beat allows the high arterial pressure to fall to a low ebb before the succeeding systole occurs. [Tracings of all these clinical phenomena were shown at the close of the address.]

As is well known to all, the anatomical explanation commenced with the observations of Gaskell,^a who showed that there was a direct and continuous connection of the sinus, the auricle, and the ventricle. The fact was afterwards more fully investigated by Stanley Kent,^b His,^c Ewald,^d Retzer,^e Braeunig,^f and Humblet,^g but during the present year (1906) the facts have been very thoroughly investigated by Tawara,^h who carried out a long and valuable research in the laboratory of Aschoff, as well as by Keith and his assistants.ⁱ The observations of Tawara, showing the course and relation of this band and demonstrating how it is continued by Purkinjes' fibres throughout the whole heart, are worthy of the closest study.

From the physiological point of view Erlanger^j has contributed the most important researches on this subject, and has shown by a most ingenious method how varying degrees of pressure upon the auriculo-ventricular band can produce different degrees of partial or absolute heart-block.

These anatomical and physiological results have been amply confirmed by pathological investigation. Stengel,^k Schmoll,^l

^a *Loc. cit.*, and *Arch. de Physiol. Norm. et Path.*, 1888, IV. Sér., Tome I., p. 56.

^b *Journal of Physiology*. 1893. Vol. XIV. P. 233.

^c *Arbeiten aus der med. Klinik zu Leipzig*. 1893. S. 14.

^d *Ein Beitrag zur Lehre von der Erregungsleitung zwischen Vorhof und Ventrikel des Froschherzens*. 1901. S. 12.

^e *Arch. f. Anat. und Physiol., Anat. Abt.* 1904. S. 1.

^f *Ueber muskelöse Verbindung zwischen Vorkammer und Kammer bei verschiedenen Wirbeltierherzen*. 1904. S. 1.

^g *Cush-internat. Physiol.* 1906. Tome III. P. 330.

^h *Das Reizleitungssystem des Säugetierherzens*. 1906. S. 1.

ⁱ *Lancet*, 1906, Vol. I., p. 623; and Vol. II., p. 359.

^j *Bull. Johns Hopkins Hospital*, 1905, Vol. XVI., p. 202; *American Journal of Physiology*, 1906, Vol. XVI., p. 160; and *British Medical Journal*, 1906, Vol. II., p. 1111.

^k *American Journal of Medical Science*. 1905. Vol. CXXX. P. 1063.

^l *Deut. Arch. klin. Med.* 1906. Bd. LXXXVII. S. 554.

Jellick Cooper and Ophüls,^a Keith,^b and myself^c have all recorded instances of disease of the auriculo-ventricular band in cases of heart-block. In some of these the change was a gumma of the inter-ventricular septum; in others it was a simple fibroid change without any very obvious cause. [Lantern slides of my own sections were shown at the end of the address.] The whole subject has been reviewed from a physiological point of view by Langendorff,^d and from a general point of view by Huchard and Berguignan.*

The consideration of this long series of observations inevitably leads us to the conclusion that the far-sighted clinical instinct of Adams and Stokes led them, in comparatively early days, to recognise one of the most interesting of all cardiac disturbances—one which has furnished ample opportunities for the energies of many inquirers, but upon which much work still remains to be done.

My pleasant task has now been performed. The great debt which the medicine of to-day owes to the clinical acumen, scientific insight, and philosophic reasoning of your celebrated countrymen has been, so far as my powers permit, fully acknowledged and gratefully recorded. In the retrospect of the labours of the Irish Schools of Medicine it has not been possible for me, when referring to the observations of those who are happily still our contemporaries, to indulge, as would be agreeable, in the language of panegyric for obvious reasons. But you will perhaps allow me, in conclusion, to express my opinion that the modern spirit of Medicine in Ireland is faithful to the traditions arising with Cheyne, Adams, Graves, Corrigan and Stokes.

^a Journal American Medical Association. 1906. Vol. XLVI. P. 955.

^b Lancet. 1906. Vol. II. P. 1429.

^c British Medical Journal. 1906. Vol. II. P. 1113.

^d Ergebnisse der Physiologie. 1905. S. 786.

* Journal des Practiciens. 1906. Pp. 821 and 837.

ART. XVI.—*The Early Diagnosis of Perforated Gastric Ulcer.**

By WILLIAM GEORGE HARNETT, M.A., M.D. Univ. Dub. ;
late Senior House Surgeon, Royal South Hants Hospital,
Southampton.

THE perforation of a gastric ulcer is one of the most serious and most overwhelming catastrophes that can befall a human being, and the importance of an early diagnosis of this condition cannot be over-estimated.

That the diagnosis of this condition is often fraught with difficulty is well known. When a history of gastric trouble is known to exist, then the sudden onset of certain symptoms is suggestive of a perforation ; but it often happens that no history of previous gastric ulceration can be elicited, and, indeed, frequently the first symptoms of the presence of a gastric ulcer are those of perforation.

Then it is that the resources of the physician are taxed, the importance of an early recognition of the condition being of such vital import to the patient, whose life hangs upon the decision, every hour of delay in invoking surgical aid lessening the chances of recovery.

Mayo Robson writes as follows :—"Though patients do occasionally recover from perforation without operation, yet I think that if we can operate in cases of gastric perforation within a few hours of the accident, success will be considerable, whereas every hour of delay will add to the danger."

The mortality from perforation of gastric ulcer, according to published statistics, varies from 6½ per cent. quoted by Lebert and Osler to 18 per cent. quoted by Habershon, the average of all authorities allowing 15 per cent. to represent the mortality from this condition, a percentage which, taking into account the great advances that have of recent years been made in the progress of gastric surgery, will doubtless become much lower if a sufficiently early diagnosis of the condition can be made.

Mayo Robson has tabulated the cases dealt with by him, showing that of cases operated upon under 12 hours there

* A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, April, 1907.

were 72 per cent. of recoveries, of cases operated upon from 12-24 hours after perforation only 37 per cent. recovered, and that after 24 hours the case rapidly becomes more hopeless.

Perforations of the stomach are usually described as being of two varieties—acute and chronic.

Acute perforating ulcer gives way suddenly and completely, often without any premonitory symptoms, and as these ulcers are generally situated on the anterior surface of the stomach, according to Bunton 70 per cent. are in this position, protective adhesions are rarely present. On account of the mobility of this portion of the organ and the contents of the stomach being extravasated into the peritoneal cavity, symptoms of peritonitis rapidly supervene.

In chronic perforation the ulcer has slowly eaten its way through the stomach coats, and a protective peritonitis has had time to develop at the base. The escape of stomach contents is therefore merely local; barriers of lymph confine the fluid to a restricted area, and a perigastric abscess may form, or perforation may occur into a neighbouring organ. This form of perforation occurs more frequently on the posterior surface of the stomach.

Thus it will be seen that the perforation of a gastric ulcer may be preceded by the symptoms and signs of ulceration, whilst, on the other hand, an ulcer of the stomach may develop and end in perforation without the patient ever having been aware of its existence.

In making a diagnosis of perforated gastric ulcer the following symptoms must be taken into account:—

1. *Pain*.—(a) Situation, usually just limited to epigastrium, afterwards becoming diffuse; (b) onset, nearly always sudden and continuous.

2. *Vomiting* sometimes occurs, but cannot be relied upon as a symptom of acute perforation, although vomit containing blood is significant. Traube, however, has called attention to the fact that vomiting is usually absent in cases of free perforation. He considers the absence of vomiting, when coupled with other symptoms, is a most important diagnostic sign.

3. *Rigidity*.—Muscular rigidity is the most important symptom, and is practically always present in the early stages until distension occurs.

4. *Tenderness*.—This is usually well-marked over the epigastric region.

5. *Pallor and Collapse*.—Usually present at first onset, but with secondary remission of symptoms may pass off.

6. *Temperature*.—No guide whatever.

7. *Pulse*.—Not always reliable.

8. *Distension*.

The following are short notes of a few cases that have come under my personal observation, a comparison of which will serve to demonstrate that the symptoms are frequently atypical, and at times misleading :—

CASE I.—J. P., anæmic young woman, aged twenty-two, had suffered from indigestion and occasional vomiting for twelve months. Whilst following her occupation of wards-maid she was seized with a sudden pain in her abdomen, which was at first limited to the epigastric region, but soon became diffuse. Seen two hours after onset of pain, her condition was one of considerable collapse, and her expression was anxious. Temperature was sub-normal, and pulse 120, very thready. The abdomen did not move freely on respiration; there was great tenderness over epigastric region, with some muscular rigidity and retraction. The abdomen was resonant all over, and there was no dulness in glands. A diagnosis of perforated gastric ulcer was made, and operative measures undertaken four hours after onset of symptoms, a perforation being discovered on anterior wall of stomach. This was excised, and a perfect recovery ensued.

CASE II.—C. W., anæmic young woman, aged twenty-three, domestic servant, had suffered from indigestion and pain after food for some months, but had never vomited. One evening, about two hours after a light supper, she was seized with severe pain in the abdomen, and vomited. She was seen by a doctor, who prescribed morphin, and saw her again early the next morning, when he ordered her immediate removal to hospital, a distance of fourteen miles, made by road. Her condition fourteen hours

after onset of symptoms was not typical, patient being under the influence of morphia, but examination of the abdomen showed considerable distension, with rigidity, loss of liver dullness, and tenderness over the whole abdomen. There was marked dullness in both flanks. Immediate operation was performed, and a perforated gastric ulcer was found on posterior surface of stomach, with much free fluid in abdominal cavity. The ulcer was inverted, and very free drainage provided for. Recovery in this case was complicated by a subphrenic abscess.

In these two cases, one seen very early and the other fairly late, there was a previous history of gastric trouble, and in each the symptoms of perforation were typical, and there were no difficulties in the diagnosis.

CASE III.—E. D., a well-nourished, healthy-looking girl, aged thirteen. Walked one evening into the out-patient department of the hospital complaining of pain in her abdomen. No previous history of illness could be elicited, but she admitted that occasionally she had a little discomfort after food. Two days previously, whilst doing some house-work, she was seized with a sudden pain in her abdomen, which, however, although it made her feel very queer, did not prevent her finishing her work. She vomited twice during the day, and had no inclination for food. On the following day the pain was severe, and she was compelled to stay in bed, and the next day she came up to the hospital.

Upon admission, over forty-eight hours after onset of pain, at first sight her condition did not appear to be a very acute one. Her expression was placid, and her tongue clean, although rather dry. Temperature was 100.6° and pulse 130; bowels had not acted for two days. The abdomen was distended, and lower part did not move with respiration. There was tenderness over left hypochondrium, left lumbar region and right iliac fossa. Whole abdomen was tympanitic, and there was marked dullness in the flank. Acute appendicitis was diagnosed, and the abdomen was opened over appendix area. The appendix was found to be healthy, but, gastric fluid escaping, the stomach was explored and a perforation found on the anterior wall of stomach. Death took place twenty-four hours after operation.

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CASE IV.—Patient, a fairly healthy man, aged sixty-five, had suffered from attacks of indigestion and hyperacidity for some years, for which he had occasionally needed treatment. One day whilst walking he was seized with pain in the abdomen, which, however, did not prevent his walking home. About twelve hours after onset of pain, domestic remedies having failed to give him relief, he sought medical advice. His condition at that time was not one of very great collapse, his temperature being slightly raised and pulse 100. The pain was constant, and referred to right flank and right iliac fossa. The whole abdomen was distended and tympanitic, and the point of greatest tenderness was over the appendix area. No definite swelling, however, could be felt.

A diagnosis of perforating appendicitis was made, and the abdomen was opened in that region. Nothing was found, and, the patient being collapsed, further exploration was impossible.

Post-mortem.—A perforated ulcer was found on pylorus.

In both of these cases the marked pain and tenderness in the right iliac fossa led to the diagnosis of appendicitis.

Mayo Robson accounts for the marked tenderness and dulness in the right iliac fossa by the fact that, owing to a hillock in the transverse meso-colon under the pyloric end of the stomach, extravasated fluids are directed downwards and to the right, into the right renal pouch, and thence into the right iliac fossa.

CASE V.—E. R., man, aged forty-three, a house painter in regular employment. For some time past had been troubled with indigestion and constipation. The day previous to admission to hospital he was seized with sudden pain in abdomen. This he ascribed to painter's colic, and his bowels not having been open for two days he took some pills.

Seen the following day: he is a man of very sallow complexion, with bad teeth, and slight pyorrhœa. His arteries were atheromatous, and albumen was present in the urine. Pulse and temperature normal. The abdomen was slightly distended, but moved with respiration. There was little rigidity of abdominal wall, tenderness was mostly confined to right side of abdomen, a spot slightly to right of umbilicus being a point of maximal tenderness. There was no abnormal tympanites or dulness.

The abdomen was explored in middle line, and a chronic ulcer, which had perforated, was found in the pylorus.

The interest of this case lies in a slight attack of plumbism which complicated the diagnosis.

Osler quotes a case of a painter, aged fifty, suffering from anæmia and severe abdominal pain, which lasted a week. He had vomiting and constipation at first, and distension and tenderness of the abdomen; death occurred at the end of the second week.

One distinguishing feature of the pain in this case was that it was continuous, whereas the pain of lead poisoning is paroxysmal.

The two following cases, quoted by Mayo Robson, are excellent examples of the difficulties sometimes present in the diagnostic signs of this condition:—

CASE I.—A young woman, aged twenty-nine, was suddenly seized at a railway station with acute abdominal pain, followed immediately by collapse, in which condition she was removed to her home. Her last regular "period" had occurred seven weeks previously, and having missed the next period, and thinking herself pregnant, she took an emetic five days previously, which brought on severe gastro-intestinal disturbance and fainting. Three days later—that is, two days before the attack in question—she had had some uterine hæmorrhage, but no stomach symptoms were complained of, and it was only on close inquiry that any history of indigestion was obtained.

Seen four hours after onset of symptoms, there was no abdominal distension, no rigidity of recti; liver dulness was present, there was some fulness in left loin, and tenderness over left ovary. On vaginal examination there was fulness in Douglas' pouch, and an indefinite fulness in the left fornix.

When seen later the pulse was 130, and she was pallid and collapsed. A diagnosis of a rupture of an extra-uterine gestation was made, and the abdomen opened over pubes, when odourless gas escaped, and a little fluid. This incision was closed, and an opening was made above umbilicus, when a small perforation was discovered in the centre of a large ulcer near the cardiac end of the stomach on the anterior surface.

CASE II.—A young woman, aged twenty-two, married twelve months, was seized suddenly with acute abdominal pain and collapse. There was a history of pain after food and occasional vomiting, which might have been due to gastric ulcer or early pregnancy. A period due three weeks before the sudden attack had been missed. Ruptured tubal pregnancy was suspected, but the problematical history of gastric ulcer, a long standing anæmia, the general distension of the abdomen with tympany, and the absence of liver dulness, were considered suggestive of perforating gastric ulcer. An incision, however, was made above the pubes, and a ruptured tube was discovered.

DIFFERENTIAL DIAGNOSIS.

In difficult and doubtful cases, before making a diagnosis, the following acute abdominal conditions must be considered and excluded:—(1) Perforated duodenal ulcer; (2) ruptured ectopic gestation; (3) acute perforating appendicitis; (4) acute intestinal obstruction; (5) acute pancreatitis.

(1) The diagnosis of *perforated duodenal ulcer* is very difficult since this condition, up to recently, has been itself rather obscure, and a diagnosis of perforation rarely made *ante-mortem* or previous to operation. Mayo Robson, in his Hunterian Lecture on Duodenal Ulcer, states that out of fifty-one cases of perforated duodenal ulcer collected from various sources only two were correctly diagnosticated, and no less than eighteen had been operated on under the impression that the cause of the peritonitis was appendicitis.

(2) *Ruptured Ectopic Gestation.*—The two cases which I have quoted serve to illustrate the fact that this condition occasionally simulates perforation of a gastric ulcer.

(3) *Acute Perforating Appendicitis.*—A perforation of the appendix may occur suddenly, the first symptoms being coincident with the onset of the perforation. In these cases the patient is suddenly seized with violent pain in the right iliac fossa, accompanied by collapse, vomiting, rigidity, first confined to right side of abdomen, but soon becoming general; distension, with paralysis of lower bowel and tympanites. In these cases, when seen early, local tenderness and resistance and muscular rigidity are the most valuable diagnostic signs.

the pain in the right iliac fossa being deceptive and often simulated by other conditions.

(4) *Acute Intestinal Obstruction*.—In this condition, usually due to an internal strangulation, the patient is generally in perfect health when suddenly seized with acute abdominal pain, usually referred to the umbilicus or epigastrium. There is marked collapse and pallor, and vomiting soon sets in, which soon becomes bilious and finally stercoraceous. The abdomen is at first flaccid, and there is no marked tenderness on pressure, distension coming on gradually. The pain is usually paroxysmal, and the vomiting may be considered as a most valuable diagnostic sign.

(5) *Acute Pancreatitis*.—This condition is rarely diagnosed during life, although successful treatment has been recorded in a few instances. The symptoms closely simulate those of acute peritonitis—viz., intense pain and vomiting, accompanied by severe collapse, frequent pulse, marked tympanites, with some pyrexia, and a variable amount of constipation.

It will thus be seen that certain acute abdominal conditions simulate one another very closely, and at times render the diagnosis very difficult. Added to this is the fact that the patient is often seen for the first time when he is too ill to describe his symptoms very accurately.

In particularising upon the difficulty at times present in the diagnosis of perforated gastric ulcer, I have in mind the tremendous advances made in gastric surgery during recent years, and that whereas a few years back a perforated gastric ulcer meant certain death, nowadays, if a sufficiently early diagnosis can be made, the patient has an excellent chance of recovery.

ART. XVII.—*A Practical Note on Disease of the Infant.*^a By
CYRIL H. M'COMAS, M.D. Univ. Dub.

WHILE there are but few morbid changes or diseases which are peculiar to the infant or which are not seen at one time or other in the adult, still there are some which, no doubt, require special study, as the symptoms which accompany them are often different.

One of the most striking peculiarities of infancy is the marked excitability of the nervous system. The most trivial lesion may cause the most profound and dangerous symptoms. One fragment of indigestible food may produce the most severe constitutional disturbance, such as pyrexia, convulsions, &c., so that a point to be remembered is that the severity of the symptoms is no guide to the severity of the lesion.

In examining and treating the infant local symptoms—*i.e.*, those pointing to mischief in any special organ—must be picked out and separated from those which are expressive merely of the general distress—*e.g.*, the jerking movements of the legs which, combined with hardness of the abdominal muscles, betrays the existence of colic.

One of the difficulties, however, in treating the infant is that such local symptoms are not always to be discovered, and, even if present, may not furnish trustworthy indication, because distant organs in the young child are so closely connected with one another that the organ from which the definite symptoms *appear* to arise may not be the organ at all which is actually the seat of disease. Take, for example, the stomach and the brain. Vomiting precedes nearly all acute infantile diseases, though the stomach may not be diseased at all. Again, pneumonia has more than once been mistaken for meningitis, with its headache, stupor and delirium. Also the fit in the infant has a very different meaning from that in the adult; in the latter it is probably the manifestation of some severe central lesion, whereas in the

^a Being a Thesis read for the Degree of M.D. in the University of Dublin, April 18, 1907.

infant it is often, though by no means always, caused by some reflex irritation, and is merely the expression of some temporary perturbation of the nervous system.

In studying infantile diseases it is noticed that *sudden* depression of strength, such as that caused by diarrhoea, often increases the excitability of the nervous system, whereas *gradual* wasting often produces the opposite result. This fact is of great importance, as certain grave morbid conditions, such as inflammation of the lung, may possibly be overlooked, as the nervous system may become so much dulled by some intercurrent disease that there may be no actual symptoms of this new condition.

The diagnosis of the infants' trouble rests chiefly on one's observation, as the history obtained from the parent or nurse may be faulty or quite wanting, so that the clinical examination on the part of the doctor is a task which at once calls into play the greatest tact, patience and control of feeling.

As good a history as possible of the early signs of ill-health or changes in the symptoms having been obtained, the infant should be watched carefully, if possible, while asleep, as it is often only then that an accurate count of the pulse and respirations can be made, as the slightest excitement on the part of the child increases the frequency of the respiratory and cardiac actions. Further, the temperature of the child can be best taken when asleep, in either the groin or rectum—the latter position is less likely to be unreliable if the surface of the child has been exposed to cold, say, for examination purposes.

The points to be observed in the clinical examination of the infant should be noted in some definite order—the general build, the complexion, the bone-formation, state of the skin and muscle (whether fat, firm or flabby), shape of the head, state of the fontanelles, facial lines, state of the nostrils, gums, tongue, shape and movements of the chest, and lastly, the infant's cry.

In the physical examination of the chest the following three points are useful :—

- (a) To percuss each side at the same period of the re-

spiratory movements—i.e., either during expiration or inspiration.

- (b) To percuss gently with two fingers, as by this a larger volume of sound is brought out and slight dulness is more easily detected.
- (c) If possible, in order to hinder the transmission of laryngeal sounds, to have the mouth open during auscultation.

The back of the infant is often difficult to examine, and it is perhaps best done by placing the infant on the nurse's left shoulder, with its left arm round her neck.

It must further be remembered that the infant's breathing is puerile, and also that normally there is less resonance at the base of the right lung than in the adult, owing to the proportionately greater size of the liver.

The clinical examination of the infant should never be concluded without examination of the ejecta, whether they be vomited or passed from the bladder or rectum.

With regard to treatment, one is encouraged by the fact that, as a rule, the infant responds well. The term "treatment," however, includes far more than the giving of physic, as a reconstruction of the dietary and a reformation in the hygienic arrangements often leads to recovery.

In acute illness one must remember that the infant will not stand lowering measures; at the same time one must not rush to the opposite extreme, as, except when suffering from temporary exhaustion, they are far from being benefited by profound stimulation.

In the beginning of acute inflammatory diseases stimulants are injurious, and even in chronic ailments, such as rickets, where a certain amount of alcohol is often of service, wine should be given with caution, and its effect upon the digestion should be carefully watched.

With regard to medicines, it may be remarked that on account of the tendency to acid dyspepsia, alkalies are of special value, especially when combined with an aromatic, because of the value of the latter in relieving the flatulence which is so commonly met with.

It is important also to remember that the infant is wonderfully tolerant of certain drugs and extremely intolerant of others. Belladonna, for instance, may be given in comparatively large doses ; infants also are far more tolerant of arsenic than their elders. They are excessively susceptible, however, to the action of opium, and this drug must be given with extreme caution.

INTERNATIONAL LARYNGO-RHINOLOGICAL CONGRESS.

It is proposed to hold a Türk and Czermak Memorial Festival, including a Laryngo-rhinological Exhibition, in Vienna, from the 21st to the 25th of April, 1908, in connection with the "International Laryngological and Rhinological Congress," which is to take place in Vienna on the days named. The exhibition will consist of objects connected with laryngology, rhinology, œsophagoscopy, and bronchoscopy, instruments for examination, operation and treatment; inhaling, electro-medical and illuminating apparatus and other technical aids, artificial organs, manuscripts, books, preparations, drawings, &c. All communications, accompanied by an exact description of the objects to be exhibited, are to be addressed, not later than December 31, 1907, to the Secretary of the Congress (Professor Dr. Michael Grossmann, Vienna, IX. Garnisongasse 10) in order that the objects may be correctly catalogued. Exhibits should be sent at latest by February 15, 1908, to "Herrn Ober-Ingenieur Jaroschka, Inspektor des k. k. Universitätsgebäudes in Wien," with whom they will be deposited. All objects will be insured against robbery, fire and damage. The import and export of exhibits has been declared as duty-free by the authorities. Exhibitors are requested to apply to the Secretary for all documents in connection with the Exhibition. The President of the Congress is Prof. Dr. O. Chiari, I., Bellariastrasse 12, Vienna. The Secretary is Prof. Dr. M. Grossmann, IX. Garnisongasse 10, Vienna.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Surgery: its Principles and Practice. By various Authors. Edited by WILLIAM WILLIAMS KEEN, M.D., LL.D.; Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Vol. I. With 261 Illustrations in the Text and 17 Coloured Plates. W. B. Saunders & Co. 1906. Pp. 983.

THIS is the first instalment of a five-volume work in the compilation of which some sixty-six eminent surgeons are to contribute each his quota, the entire work being under the editorship of so universally renowned an author and surgeon as Professor Keen.

Though the surgery is to be representative of that which is taught and practised at the present day on reading over the names of all these collaborating in the production of the work, one cannot help being struck with the fact that British surgery is to be represented by but four surgeons—surgeons whose eminence and ability to do the work entrusted to them no one can doubt—while the Continent of Europe can provide but three men capable of being included in the production of this work.

We have no doubt whatever but that surgery in all its branches will be presented in a thoroughly up-to-date form by each of those whose names appear amongst the contributors, for each name is well known wherever surgery is practised as that of an eminent writer and sound practical surgeon. Still we think the work might possibly have been improved—it would not at any rate have suffered—by allotting a little more to British and European surgeons. As it is—with the exceptions of the articles to be written by these seven European surgeons, and four of these articles are by no means the most important in the extensive domains of surgery—the work could only be said to be representative of American surgery.

The first chapter in the volume before us gives us a historical sketch of surgery beginning with Hippocrates and terminating with Lord Lister. There is a tremendous gap left between Galen, who died in the beginning of the third century, and Vesalius, with an account of whom we are next presented, and who lived in the 16th century; still, we assume the omission is due to the fact that but little progress was made during the interval. The chapter is what the name of its author, James G. Mumford, would have us to expect—viz., thoroughly interesting and readable. Chapter II. is devoted to a discussion on surgical physiology, and was entrusted to George W. Crile, M.D. Every surgeon has been reading for some considerable time this gentleman's writings and the results of his work in connection with the application of physiology to surgery, especially his work in the causation, prevention and treatment of shock. It is unnecessary for us to do more than mention his name as the writer of this important chapter to indicate that the subject has been treated in a sound and eminently practical fashion. In Chapter III., written by Da Costa, Junr., will be found a comprehensive dissertation on the blood: its general physiology and pathology in their relations to surgery and surgical affections.

The other chapters which may be included under the comprehensive term of the "Principles of Surgery" are infection and immunity, by Ludvig Hektoen, of Chicago, in which full justice is done to Wright's work in connection with opsonins; inflammation treated in an able and efficient manner by John George Adams, F.R.S., of Montreal; suppuration abscess and fistula, by Leonard Freeman, of Denver, followed by chapters on ulceration and gangrene by the same author; process of repair, entrusted to Francis Carter Wood, of New York; thrombosis and embolism, erysipelas, tetanus, diseases caused by special infections, and diseases directly derived from animals, insects and reptiles—all written by Charles Harrison Frazer, of Philadelphia, who likewise contributes the section on scurvy; traumatic fevers, by Eugene Alfred Smith, of Buffalo; rickets, by Edmond Hall Nichols, of Boston; and tuberculosis in all its surgical aspects, by John Chalmers Da Costa, of Philadelphia.

Edward Martin, of Philadelphia, is responsible for the sections on chancroid and syphilis ; Bland-Sutton contributes the chapter on tumours, and without wishing to depreciate in the slightest the excellence of the other sections we cannot refrain from specially mentioning this chapter. It gives the finest and most complete description of tumours we have yet read in any general text-book on surgery. It contains over 150 pages, and abounds with illustrations. It seems to us but a condensed edition of his work on Tumours, Innocent and Malignant, which has just appeared in a revised and considerably enlarged form.

The last chapter in the volume is on wounds and contusions, and is written by Crile, whose name is a guarantee for its excellence.

Should the subsequent volumes equal this one in the standard of the teaching they contain, then we may safely predict an unprecedented success for the work, which will have no rival in the English language. Each article in the volume under review is a monograph of the highest excellence by a distinguished authority and writer, and has its value enhanced by an extensive and complete bibliography.

We congratulate the distinguished Editor, and must add a word of praise for the manner in which the publishers have produced the work.

The Diagnosis of Nervous Diseases. By PURVES STEWART, M.A., M.D., F.R.C.P. ; Physician to Out-Patients at the Westminster Hospital ; Joint Lecturer on Medicine in the Medical School ; Physician to the Royal National Orthopædic Hospital ; Assistant Physician to the Italian Hospital. London : Edward Arnold. 1906. 8vo. Pp. xii + 380.

NOR only advanced medical students but medical practitioners also owe a debt of gratitude to Dr. Purves Stewart for having written so excellent a work on the difficult subject of nervous diseases.

As the author points out in his Preface, the subject of the work is mainly the diagnosis of nervous diseases, and this is

approached from the clinical standpoint. After a short introductory account of the more important facts relating to the anatomy and physiology of the nervous system, and a lecture on case-taking, the various signs and symptoms of nervous diseases are discussed and illustrated by clinical cases.

The lively interest which the conscientious reader is sure to take as he cons the pages of this book arises from the fact that all the clinical illustrations are taken from cases which Dr. Stewart has personally observed, most of them at the Westminster Hospital.

The work consists of twenty-three lectures, some of which were delivered to undergraduate classes at the Westminster Hospital, others to post-graduate audiences in London and elsewhere. The first two lectures deal with the anatomy and physiology of the nervous system. They are well illustrated, and the author's diction is as simple as it is clear.

In the third lecture the author sets forth a method of case-taking which will be found most useful. We are reminded that "the chief causes of wrong diagnosis are insufficient examination, inaccurate observation, and, less commonly, false conclusions from correct and sufficient facts"; and again, "examination of a nervous case should not be confined to the nervous system alone. All the systems of the body should be investigated. An accomplished neurologist must be in the first place a sound physician."

The subjects discussed in subsequent lectures are—coma, fits, involuntary movements, aphasia, disorders of articulation, lesions of the cranial nerves, pain and other abnormal subjective sensations, abnormalities of sensation (hyperæsthesia, paræsthesia, and anæsthesia), organic motor paralysis of the upper neuron type, organic motor paralysis of the lower neuron type, recurrent and transient palsies, incoördination, postures and gaits, tropho-neuroses, reflexes, affections of the sympathetic, angio-neuroses, hysteria, electro-diagnosis, and electro-prognosis, the cerebro-spinal fluid. In the last of these lectures an excellent account of "lumbar puncture" is given, and the operation is illustrated by a diagram and two drawings.

The author's style is admirable—short sentences written in

clear, grammatical English fix the reader's attention and so aid his memory. It is a pleasure to read these delightful lectures. They will do much "to lay the bogey," which the study of nervous diseases has hitherto been to medical students.

The volume is splendidly illustrated, and the fine paper, clear type and general setting of the work reflect great credit on the publisher, Mr. Edward Arnold, of London.

On Leprosy and Fish-eating. A Statement of Facts and Explanations. By JONATHAN HUTCHINSON, F.R.S. and F.R.C.S., LL.D. Glasgow, Edinburgh, Cambridge, and Oxford; D.Sc. Leeds, and Hon. M.D. Dublin; formerly President of the Royal College of Surgeons. London: Archibald Constable & Co., Ltd. 1906. 8vo. Pp. xxiv + 420.

UP to the actual moment of our writing the venerable author of this volume still continues to utilise every available channel of communication with the public for the purpose of converting the unregenerate members of his cosmopolitan audience to his way of thinking in the matter of leprosy; with, of course, an implied collateral effort towards inducing a definite consequent line of action in the direction of betterment of the deplorable condition of the already afflicted, and of a practical method of limitation—and final extinction—of the disease. There can be no question of the earnestness of thought and benevolence of intention which Mr. Jonathan Hutchinson has brought to bear upon his subject; and which has inspired all his actions and publications in connection with this his crusade against the demon of leprosy—under the banner of the "fish hypothesis." They are the same—rather, perhaps, we should say they represent the climax of the development of the type of inspiration and consequent action—which have invariably characterised his whole professional career. Without wishing to make invidious distinctions, or to institute odious comparisons, we can state, without fear of successful contradiction, that Mr. Jonathan Hutchinson

has made a greater number of sterling additions to our Index Catalogue of Clinical Signs, Symptoms, Syndromes, and Events—thereon dependent, and therewith associated—than any other living member of his profession. This fact we pronounce to be indisputable; we may also add that there is no manner of fear of its being disputed, for it is thoroughly well known. And it is this consideration which makes Mr. Jonathan Hutchinson's adoption of the venerable "fish hypothesis" so important an event in the history of contemporary clinical medicine and pathology. He himself admits that the evidence which can be concentrated in its favour is not logically complete, and, therefore, not absolutely convincing to a stubborn opponent. But what the man in the street knows in connection with this question is, that the fish hypothesis is "Jonathan Hutchinson's hypothesis," that it has been irrevocably accepted, and is implicitly believed in, by that great authority; and that, accordingly, it is good enough for him—and, surely too, for all those people in the world besides who happen to be concerned in the solution of the problem. The authorship—the invention—of this now noted hypothesis is attributed (even probably by the majority of average medical practitioners) to this colossus of pathology, who has contributed more original matter to our common treasury of capitalised clinical knowledge than any contemporary member of his profession. "The *fish hypothesis* is advocated and propagated by Jonathan Hutchinson; who are you, sir, who thus dare to oppose your puny opinion to his mighty intellectual influence and scientific authority?" With such a thundering denunciation of the *argumentum ad vericundiam* the minor septic has not infrequently been extinguished, if not permanently annihilated, in recent discussions of the question.

Another form of the *argumentum ad hominem*, that which is ushered in by the phrase: "My experience is that . . .," is also one which has immense influence with the busy crowd, when based upon a prolonged record of prominence in the public eye. Yet it is one which is

rarely—if ever—seriously employed by a clinical observer whose opinions are founded on a solid scientific basis or otherwise than a *dernier ressort*, where there is no other support to fall back on. And here we will take the liberty of a moment's excursion—in the way of a digression—which may not prove irrelevant. The *experience* argument, when applied to a scientific question, never fails to remind us of its frequent employment by a witty old Irishman—a denison of a bog cabin of one of the congested districts of the West—in our own schoolboy days. The boy of eight tried as best he could to enlighten the illiterate senior of seventy on the vexatious question of the diurnal rotation of the earth. The old man's ignorance, of science as well as of letters, was, of course, of snow-white purity; but his belief in his own powers of observation, and his deductions therefrom, were all the more impregnable. And his clinching argument against any rotatory movement of the surface of our planet always was to the effect that—"Shure, now, I have lived in my own house, there beyant, all me long life; and me expayrience is that every night when I'm goin' to shut my dures before goin' to bed, I see Paddy ——'s house before my frunt dure, and Micky ——'s forninst my back dure; and when I get up and look out neksht mornin', there they are agin, in the same place! Now, if the world was turning round in the way you're sayin', wouldn't Mickey ——'s house be in the mornin' where Paddy ——'s house was the night before?" And the old man would never be persuaded that such a change of relations would not have been established if the world had turned half-way round on its axis during the night. He could never have seen—and, indeed, his interlocutor did not clearly understand at the time—how the missing minor premiss of the old man's enthymeme implied, in its silence, that the axis of the earth passed through his house (or his person; a not infrequent mistake in moral, as well as scientific, argumentation!). The average reader will probably but smile with amused contempt at this poverty of scientific fact and reasoning power in the primitive Western life

of a former generation, and the cast-iron rigidity of the mental position which was founded thereon. And yet the humiliating fact still remains that an enormous proportion of—even what is called “scientific”—reasoning in our own twentieth century is carried out on precisely parallel lines. If the assumption of our old friend’s suppressed premiss could be substantiated his argument would be firmly founded—and so of hundreds of specimens of the scientific ratiocination which is in course of evolution at the present day. To return—Mr. Jonathan Hutchinson’s accepted hypothesis of the origin and propagation of leprosy is not new; it has frequently been ventilated, and in many localities, but never and nowhere before with the *vis à tergo* which is now supplied by the immense weight of his authority. The cosmopolitan interest attached to the existence in so many lands of a gruesome disease of even weirdly mysterious character and antecedent history renders it well worthy of the special manipulation of an authority whose fame is world-wide, and very deservedly so—as is that of the subject which he has specially selected for investigation. The writer’s well-earned fame renders his every enunciation on any clinical or ætiological problem, in the direction of which he has concentrated his attention, deserving of the most careful and respectful consideration which can be bestowed upon the same by his professional contemporaries throughout the world. It is also on this very account that, bearing in mind the essential limitations of all human thought and judgment, his decisions should be more searchingly scrutinised than those of others. For every one of them is sure to exercise a great amount of influence wherever Medicine is taught and practised throughout the civilised world. It is on this account that every new, or previously unsettled, opinion which has received the seal of Mr. Jonathan Hutchinson’s authority should be carefully weighed—and marked, and learned, as well as read—before being inwardly digested; and this by all clinicians and pathologists, great as well as small.

Now the strength of a chain is admitted by all—even

moderately rational human beings—to be that of its weakest link. This statement, indeed, requires no logical, or other specially scientific, demonstration. And unprejudiced observers must admit, too, that the chain of reasoning with which Mr. Jonathan Hutchinson has endeavoured to circumscribe the ætiology of leprosy displays some links which are not calculated to resist an inquiring stress or critical strain; and others still which—if we may be pardoned a slight lapse into the patriotic pathway of Hibernicism—are demonstrably non-existent. Why it is that this strange disease should have *specially selected* for its attentions certain regions of the earth's surface where fish-eating is *least frequent* (even if we admit that it *sometimes* does occur, contrary to established habits and religious and racial prejudice) is a form of the great question with which the volume before us deals that has not yet received an answer which can be said to be even approximately satisfactory. That the hypothesis has, for untold centuries, been an item of folk-lore pathology is a fact not likely to strengthen its probability very much in the opinion of the impartial scientific observer. Of course, it has passed long ago through the theological filter. In his great *History of Norway* (English version, 1755) Bishop Pontopiddan tells his readers of the prevailing cutaneous plague of his country: "This is chiefly found among those that live along the coast, occasioned probably by eating great quantities of fat fish, and especially the liver of the cod. This is probably a scabies-scorbutica, which may be called a leprosy, but not so infectious as the Oriental lepra; for married people live together many years, and the healthy is not infected, though the other party has it. But if they have children, they sometimes take the infection, though not always." And that most "dexterous writer of letters," James Howell (1594-1666), tells his readers: "We are now in North Holland, and I have never seen among so few people so many infected with the leprosy as here. They say the reason is because they eat so much fish." Now, why does this disease avoid the Western Irish coast—fish-eating, Roman Catholic, un-

tidy in person, and carelessly unskilful in cooking? Ay, tell me that, and unyoke. All honour to Mr. Jonathan Hutchinson in his nobly philanthropic exertions for the release of the imprisoned victims! But with regard to the cause of the disease we respectfully suggest that he should look elsewhere.

A Text-Book of Pathology. By ALFRED STENGEL, M.D.; Professor of Clinical Medicine, University of Pennsylvania; Physician to the Pennsylvania University, and the Philadelphia Hospitals. Fifth Edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1906. 8vo. Pp. 979.

WITHIN ten years Dr. Stengel's "Text-book of Pathology" has run through five editions, of which the second and third were twice reprinted, and the fourth was once reprinted. Such a record renders the reviewer's task a light one, and must be most gratifying to the author.

The volume has been increased in size, for Dr. Stengel in preparing the present edition has deemed it necessary to reconstruct a large part of the sections dealing with general pathology. The chapters on Inflammation, Immunity and Animal Parasites have been extensively revised and somewhat augmented. As a rule, the information given is up-to-date; but in the description of the Leishman-Donovan Bodies on page 334 no mention is made of Major Leonard Rogers' researches on the developed forms of the parasite of Kala-azar. To those researches full reference may be found in Professor E. A. Minchin's masterly monograph on "Protozoa" in Part II. of the second volume of Clifford Allbutt's and Rolleston's *System of Medicine*, 1907, and in Colonel Leishman's account of kala-azar in the same work. It will be remembered that Professor Rogers chose kala-azar as the subject of the Milroy Lectures, which he delivered last winter before the Royal College of Physicians of London.

Once more we have pleasure in recommending Professor Stengel's "Text-book of Pathology" to practitioners as well as to medical students. It is splendidly illustrated. There

are 399 illustrations in the text, many of them in colours, and besides these there are seven full-page chromolithographic plates. Of the latter the fourth and fifth represent the stages of red and grey hepatisation in acute fibrinous pneumonia respectively. They are after Bollinger, and give a very good idea of the appearances. "Red" is misprinted "gray" on Plate 4, but the colour is sufficient to correct the error.

The publishers, Messrs. W. B. Saunders, of Philadelphia and London, have spared no pains or expense in bringing out the work, and in his Preface the author gracefully acknowledges their courteous co-operation.

A System of Medicine by Many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College; and HUMPHRY DAVY ROLLESTON, M.A., M.D., F.R.C.P., Physician to St. George's Hospital and to the Victoria Hospital for Children, sometime Fellow of St. John's College, Cambridge. Volume II. Part II. Tropical Diseases and Animal Parasites. London: Macmillan & Co. 1907. 8vo. Pp. xvi + 1055.

THIS is a remarkable volume. If we may venture to prophesy, it will for many years to come serve as an authoritative treatise on Tropical Medicine and Animal Parasites.

In their Preface, the authors say that in order to provide an authoritative account of the animal parasites and carriers of tropical diseases, a knowledge of which is of the greatest importance to those engaged in the study and practice of Tropical Medicine, special articles by zoologists have been included. These articles, or indeed condensed monographs, deal with the Protozoa (for which Professor E. A. Minchin, M.A., is responsible), Mosquitos (Mr. Fred. V. Theobald, M.A.), Blood-sucking and other Flies known or likely to be concerned in the spread of disease (Mr. Ernest E. Austen, F.Z.S.), and Ticks (Mr. R. J. Pocock, F.Z.S.). The several monographs have been freely illustrated, so as to assist in identification

of the animals described. The whole volume contains 229 illustrations, besides numerous temperature charts of sleeping sickness, malaria, tick fever, and yellow fever.

A classical section on "Parasitic Worms," by Sir Patrick Manson, has been thoroughly revised by Mr. A. E. Shipley, M.A., Hon. D.Sc. Princeton, F.R.S., and includes a subsection on "Bilharziasis," by F. M. Sandwith, M.D., F.R.C.P.

The Editors have evidently spared no pains to make this volume worthy of its all-important themes.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. II. Bread to Ear. Vol. III. Earth Burial to Gummi Indicum. Vol. IV. Gum-Resins to Intussusception. Edinburgh and London: William Green & Sons. 8vo. Pp. xi + 560. 1906 and 1907.

VOLUME II. of *Green's Encyclopedia and Dictionary of Medicine and Surgery* presents the same features as the first volume, which we noticed in these pages in 1906. It contains 1,758 subject-headings, including 80 articles of more than 1,000 words in length. There are 200 articles of from 80 to 900 words; and, finally, there are 1,478 short articles and headings, varying in length from 10 lines to a few words. These are, for the most part, of the nature of definitions.

The additions include new articles on such recent developments of methods of diagnosis and treatment as cryoscopy, cytodiagnosis, and dechlorination, or restriction of the amount of salt consumed to the minimum contained in the food elements.

As a specimen of a definition-article we may quote the entry "Buhl's Disease." It is defined as an "acute fatty degeneration of the new-born infant, with hæmorrhages in the heart, liver, and kidneys." Dipsophobia is defined within quotation marks as a "Fanatic abstinence from intoxicating liquors"—the cross reference "see *Insanity, Nature and Symptoms (Insane Defects of Inhibition)*" is not very complimentary.

The numerous cross-references, on which the Editor (Dr. J. W. Ballantyne) rather prides himself, are sometimes rather

tantalising. Take, for example, the entry "Chloroform." It occupies only 24 lines, and yet of these 12, or just one-half, are taken up with cross-references—some of which do not strike us as *ad rem*. In this same article also the doses of the preparations of chloroform are given, but not their strengths. One must recollect also that the work, which will consist of ten large volumes, will scarcely be completed within five years—a long time to wait for the description of "Carrión's Disease," which is promised under the heading "Verruga Peruana." However, we can honestly say that the general impression left upon the reader's mind as to this second volume of Green's Encyclopedia is distinctly favourable. We should not omit to mention the excellence of the illustrations and the fulness of the index with which the volume closes.

The third volume of this great work carries the subject-matter from Earth Burial to Gummi Indicum, and contains 1,097 subject-headings, including 60 articles of more than 1,000 words in length, over 100 articles of between 80 to 900 words, and, lastly, 935 short articles and headings, varying in length from 10 lines to a few words. Many of these last are definitions of medical terms, new and old, while some are the cross-references to which we have alluded above in terms of qualified approval. On this point we differ from the Editor, who appeals to the three volumes now published in proof that "the cross-references are of great value in opening up, as it were, the contents of the *Encyclopedia* to his (the reader's) use, and in facilitating immediate reference to all the aspects of any given subject."

One of the finest articles in this volume is one on "Human Embryology" by the Editor himself, Dr. J. W. Ballantyne, of Edinburgh. We congratulate him on his masterly presentation of a difficult subject, and on the success which has so far attended his editorial labours.

Dr. J. W. Ballantine, the editor, tells us that the four volumes now issued of this work contain almost all the articles of the first five volumes of the "Encyclopædia

Medica," so well edited by Dr. Chalmers Watson, along with a great mass of new material.

Of 872 subject-headings in the present volume, 52 are those of articles of more than 1,000 words in length. One of these, which deals with "The Heart and its Diseases," occupies 98 pages, while another, on Insanity, covers 77 pages.

There are 54 articles, which vary in length from 10 lines to 1,000 words, and there are 766 subject-headings which are less than 10 lines in length. Many of these last are short definitions of new terms, or short descriptions of new methods of treatment and of new drugs, while others are cross-references, prepared with great care, and intended to help the busy practitioner when he consults the Encyclopædia. It is obvious that the utility of this feature is at present limited owing to the present incompleteness of the work. When the remaining volumes are published, the value of the cross-references will no doubt be more fully appreciated.

Auscultation and Percussion : together with the other Methods of Physical Examination of the Chest. By SAMUEL GEE, M.D., F.R.C.P., Honorary Physician to H.R.H. the Prince of Wales, and Consulting Physician to Saint Bartholomew's Hospital. Fifth Edition. London : Smith, Elder & Co. 1906. Pp. xviii + 325.

NOTHING more is demanded of the reviewer of Dr. Gee's excellent book than to chronicle the publication of a fifth edition.

The work remains practically unaltered, and the author thinks it necessary, in his Preface, to apologise, as it were, for not including in the new edition skiagraphy by X-rays among the methods of physical examination of the chest. He justifies the omission by naively observing that few medical men possess the necessary apparatus, and by adding, in a footnote, that a complete treatise on this subject is about to be published by Dr. Hugh Walsham and Dr. Geo. Harrison Orton.

We confess that we are glad that Dr. Gee chose this course, for his "Auscultation and Percussion" has always had a fascination for us because of its originality and its classical and old-world style. In no other work of the kind also is more homage paid to the worthy pioneers of physical examination of the chest, such as Hippocrates, Morton, Willis, Van Swieten, Leopold Auenbrugger, Laennec, Skoda, Piorry, Corvisart, Wintrich and others. It is a striking tribute to the excellence of his work that Gee's "Auscultation and Percussion" is as valued and in as much request in the twentieth as it was in the nineteenth century.

The Diagnosis and Modern Treatment of Pulmonary Consumption. With special reference to the Early Recognition and the Permanent Arrest of the Disease. By ARTHUR LATHAM, M.A., M.D. Oxon., M.A. Cantab., F.R.C.P. Lond.; Author of the Prize Essay on the Erection of the King Edward VII. Sanatorium; Physician and Lecturer on Medicine at St. George's Hospital; Senior Assistant Physician at the Brompton Hospital for Consumption and Diseases of the Chest; Advisory Physician to the Throat Hospital, Golden Square; Advisory Physician to the York Road Lying-in Hospital. Third Edition. London: Baillière, Tindall & Cox. 1907. Demy 8vo. Pp. viii + 260.

In the number of this Journal for January, 1906 (Vol. CXXI., No. 409, Third Series, page 47), we welcomed the second edition of this excellent book, which we described as one of the most useful of the many works on Pulmonary Consumption which have appeared within recent years.

The third edition was published in March of the present year. It runs on the same lines as previous editions, dealing principally with the clinical aspect of pulmonary tuberculosis and with the treatment of the disease, especially by the open-air method in a sanatorium. New sections have been added on such subjects as the value of the opsonic index in diagnosis and treatment, the use of Koch's new tuberculin in treatment, and Dr. Marcus Sinclair Paterson's interesting observations

on the value of manual labour at the Brompton Hospital Sanatorium, Frimley, Surrey.

RECENT WORKS ON ANÆSTHETICS.

1. *Anæsthetics and their Administration.* A Text-book for Medical and Dental Practitioners and Students. By FREDERIC W. HEWITT, M.V.O., M.D. Third Edition. London: Macmillan & Co. 1907. 8vo. Pp. xxxiii + 627.
2. *Anæsthetics, their Uses and Administration.* By DUDLEY W. BUXTON, M.D. Fourth Edition. London: H. K. Lewis. 1907. 8vo. Pp. viii + 415.

To those who look forward to the development of the teaching of this important branch of medicine the publication of a new edition of these works, after an interval of only six years, may well be considered a hopeful sign. Not many years ago the student and practitioner were dependent on short chapters in the works on General Surgery for instruction in Anæsthetics, but now there are, in the English language, several admirable monographs on the subject, and among these the first place will be readily granted to the two works before us. In both cases the new editions have been considerably augmented, the new matter added entailing an increase of about a hundred pages, as well as the elimination of some of the text of the former editions.

The subject of Chloride of Ethyl as a general anæsthetic, which had scarcely been touched on in former editions, is very fully treated of now by both writers. That the drug is a useful addition to our armamentarium will be readily admitted, but the place it is to occupy in the future is by no means so settled. We rather gather that both our authors would limit its usefulness considerably, and in this we agree with them. There is no doubt that as a preliminary to ether it is more convenient than nitrous oxide, though not so pleasant; while in anæsthetising young children there is no drug which gives quite so satisfactory results during the period of induction. Hewitt is of opinion that ethyl chloride is especially useful for dental operations on alcoholic subjects, who as a rule take nitrous oxide badly,

but in such cases Buxton prefers the gas and ether sequence. The difficulty in estimating the safety of the drug is admitted by both authors. Buxton would place it between ether and chloroform, but such a comparison we look on as most fallacious, for were chloride of ethyl used under conditions and for periods similar to those in which the other two drugs are employed it would, we believe, be found to have a very much higher rate of mortality than either of them. A drug which can produce such profound effects in such a short time as ethyl chloride does must always be fraught with considerable danger.

Another very important addition to both works is the treatment of the question of Dosimetry in Chloroform, and the description of the various forms of apparatus which have been recently introduced for this method of the administration of chloroform. Of the newer forms of apparatus, such as those of Levy, Dubois, Waller and Harcourt, the latter appears to have received the most attention from a clinical point of view. Dr. Buxton, who has had a very large experience of this apparatus, speaks in no uncertain terms of praise. He says: "Speaking from an experience of three years and some thousands of cases, many of the gravest character, I have found the inhaler fulfils all the purposes for which it was constructed." Hewitt appears to be by no means so well satisfied with it, considering that its use tends to produce some respiratory embarrassment. He points out, what we believe to be perfectly true, that no apparatus, however perfect, can prevent the development of a state of intercurrent asphyxia, and it is this state of asphyxia which introduces the element of danger, no matter how carefully the percentage of chloroform may be regulated. It is not, in our opinion, a fair argument in favour of the regulating inhalers to say that without them we are unable to tell what strength of the drug is been given. It is not the percentage of the vapour that is inhaled that is the important thing, but the percentage that is in the alveoli of the lungs, and this in practice will depend quite as much, if not more, on the ventilation of the lungs as on the percentage in the inspired air. Of course we are speaking of the use of the drug by more or less skilled anæsthetists,

for those who have neither skill nor knowledge should not use the drug in any way. We consider also that Hewitt makes a very important point when he insists that medical students who are taught to administer chloroform should be taught methods which they will be able to apply in practice. "To insist upon their invariably administering this anæsthetic by means of some comparatively complicated instrument which will, with rare exceptions, be unattainable in practice, is obviously unfair, both to themselves as students and to the general public with whom they will subsequently have to deal." For a further consideration of these very important points our readers are referred to the works under review, where the matter is very fully discussed, and especially to Section 3 in Chapter XI. of Dr. Hewitt's book.

There is one matter, intimately connected with the administration of anæsthetics, with which neither of our authors have dealt as fully as we could wish—we refer to Asphyxia. An early recognition of the signs and symptoms of intercurrent asphyxia is of the utmost importance to the anæsthetist, no matter what drug or apparatus he may be using, and yet it is astonishing how often the signs of asphyxia are misinterpreted and attributed to the action of the anæsthetic rather than to the true cause. We would suggest that in future editions a short chapter on this subject would be of great value. We trust also that there will soon be an opportunity of adopting our suggestion, for we should like to see one or other of the works before us in the hands of all those who propose to administer anæsthetics.

T. P. C. K.

Davos as a Health Resort : A Handbook with 6 Chromotype Reproductions of Water-Colour Paintings and 44 other Illustrations. Davos (Switzerland) : Davos Printing Company, Ltd. 1906. Pp. 316.

THIS excellent book of reference contains a number of contributions by various authors, and opens with an introduction by Dr. W. R. Huggard, M.A., F.R.C.P. Lond., His Britannic Majesty's Consul at Davos. In that introduction Dr. Huggard observes : "To a remarkable extent Davos has developed in

many directions and on broad lines. It is the most cosmopolitan of resorts. It has become the home of the most modern treatment of tuberculosis, and at the same time it has become a centre for winter sports, such as tobogganing, skating and ski-ing. This two-fold development has proved an advantage for all classes of visitors—for persons who come for amusement, recreation, or sport, and for those who come solely on account of health. The advantage for the person seeking recreation is that nowhere else will be found the same combination of facilities for amusement with practical freedom from liability to infection by tuberculosis." The body of the work consists of thirteen articles by men who have resided at Davos and are thoroughly acquainted with the place. Most of these articles are translated by Mr. W. G. Lockett, the Editor of the Davos "Courier," who contributes to the volume an entertaining historical account of the English Colony at Davos. Its founder, so to speak, was Mr. Arthur William Waters, who came to Davos in the summer of 1869, and stayed on during the following winter. In 1896 there were no fewer than 3,257 English visitors at the famous Alpine health-resort.

To all intending visitors we heartily commend this book as an indispensable addition to their library.

Women's Health and How to Take Care of It. By FLORENCE STACPOOLE, Certificated London Obstetrical Society; Lecturer for the National Health Society, and for the Councils of Technical Education; Author of "Advice to Women on the Care of their Health, Before, During, and After Confinement," "Our Sick, and How to Take Care of Them," &c., &c. Second Edition, Revised. Bristol: John Wright & Co., London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 1906. 8vo. Pp. vii + 165.

THE fact that a second edition of Miss [Mrs. ?] Stacpoole's booklet has appeared within a comparatively short time from the issue of the original furnishes in itself satisfactory testimony to the fact that the function of the latter has been fulfilled, as an item in the special educa-

tion of the public. And we consider that the success of the volume before us is more than ordinarily secure. It bears all the marks of having been prepared with scrupulously conscientious care; the style is lucid and easy; the diction is well chosen, and always peculiarly appropriate to the matter in hand; and the authoress does *not* claim for her work a value which its scope and contents cannot honestly support. As she states in her preface:—"I must here utter a serious warning as to the danger incurred by women attempting to treat themselves in any way beyond the moderate limits here laid down." And she further adds—with an emphatic earnestness which should be noted by all those who are specially concerned:—"An old proverb has it, that 'He who will be his own doctor has a fool for a patient.' This is especially so with the more serious maladies peculiar to the female sex."

The *raison d'être* of this guide-book to female hygiene is most tersely and truly enunciated in the very appropriate motto, taken from "Buck's Hygiene":—"As the health of women is, on the whole, more important to the national vigour than that of men, special care should be taken to guard it."

Accordingly, acting on the further inspiration conveyed in the dictum of "a well-known doctor," that "Suffering is not woman's necessary lot," our authoress has placed before her sex a manual of sound advice on this engrossing subject, of such unlimited importance to humanity at large, as well as to the individual; to the mental and moral, as well as to the physical, *upward* trend of the evolutionary progress of the human race—here and elsewhere, in the future as well as in the present.

Female readers will very naturally look to one of their own sex with special confidence in many of the troubles for the relief of which they can learn from males only the results of "hearsay evidence"; and in the case of our authoress we can confidently assure them that they will find a reliable adviser. With this assurance we will close our notice, as the many subjects included in her text

are of far too extensive importance to be fully discussed within the limits of a (necessarily) short critical review.

The Drink Problem in its Medico-Sociological Aspects. By Fourteen Medical Authorities. Edited by T. N. KELYNACK, M.D. London: Methuen & Co. 1907. Pp. 300.

THE writers have been allowed a free hand, each in his separate department, and the result is a volume valuable alike for reading and for reference. Amongst the most important sections are "The Pathology of Alcoholism," by Sims Woodhead; "Alcohol and Life Assurance," by W. M'Adam Eccles; and "Alcoholism in relation to Women and Children," by Dr. Mary Scharlieb. There is an excellent index of twelve double-column pages, which welds the component sections into an easily consulted whole.

Hypnotism: or Suggestion and Psychotherapy. A Study of the Psychological, Psycho-physiological and Therapeutic Aspects of Hypnotism. By DR. (Med.) ANGNOR FOREL, Dr. Phil. (H.C.) et Jur. (H.C.), Chigny, Switzerland; formerly Professor of Psychiatry and Director of the Provincial Lunatic Asylum, Zurich. Translated from the Fifth German Edition. By H. W. ARMIT, M.R.C.S., L.R.C.P. London: Rebman, Ltd. New York: Rebman Company. 1906.

EVERYTHING goes to show that Hypnotism is a visitor which has not furnished itself with a return ticket; and has, accordingly, come to stay. Having come to this conclusion we consider it to be our best policy, as well as our simple duty in hospitality, to come to a full understanding with our junior neighbour, and so to arrange our relative existence that our future intercourse may be a pleasant one on every occasion, and our unavoidable acquaintanceship a source of mutual profit and pleasure. Despite our boasted conquests of the mysteries of nature, and the unlimited distribution of juvenile education, of cheap journalism, and the recognised right of every adult

to seal his opinions with his vote rather than with his blood, but still find the psychological faculties of our most enlightened contemporaries greatly influenced—in the mass, perhaps, even more than individually—by the mere *names* of entities, rather than by the substantial bases to which indicative items of recent nomenclature have been attached. One of these specially mystifying names is that which forms the leading title of the volume before us.

Hypnotism may be taken literally as connotative of a condition of “induced” *dreaminess*. This would include drowsiness (or some form of sleepiness, or sleep); and, inevitably, imply a state in which the higher voluntary functions of both mind and body are suspended, while the mere passive forms of vital activity have suffered no specific deterioration. When novelty (real, fancied, or feigned) is announced in some department of Medicine, or any other science, the tendency of our highly-educated generation is to distinguish the new-born idea with a previously unknown name. Accordingly, we have lived through the births of very many battalions of such! Hypnotism has had the attractions of infancy and brightness of juvenility specially claimed for it in our own day. Its sponsors declared that their psychological and therapeutical prodigy was without a representative in ancestry—indeed, a miraculous birth; a product of pure *inspiration*; like the authors of so many of the great creeds which have swayed the thoughts and actions of the human race. But if we regard the conditions in the unquestionable view of its distinguishing aspect of *suggestibility* we shall probably soon be led to acknowledge that its earliest development reaches back to patriarchal times. Most assuredly the Mosaic history of the Fall of our Mother Eve represents the power of the mechanism of suggestion when brought to bear on the moral centre of gravity of the common ancestress of the human race. And its power in the cure of disease is surely implied in the elevation of the brazen serpent in the wilderness by the Hebrew Law-giver, the looking upon which gave life to the victim of the otherwise deadly bite. The “pillar

of cloud by day" and the "pillar of fire by night" had their "suggestive" influence on the individual members of the chosen race—without having the significance of their functions successively discussed every day and night with all and singular. So have had the banners and ensigns, and standards, of the armed hosts militant of all the nations during (and before) historic time. So have had the symbols and signs of all the great creeds and churches militant. The anxiously-conveyed counsel of the fond parent and the stern admonitions of the tutor (or governess) offer examples of the amenability of the human mind, in the days of its early flexibility, to the directive influence of suggestion. The pointed finger, the warning tone, the implied threat, the inspiring tones of praise, and the soothing methods of seduction, are all weapons taken from the same armamentarium. The despised warnings of the raving Cassandra, and the prophetic wailings of the inspired Jeremiah, have in each case appealed to the same hidden mainspring in the mechanism of the human mind. And hypnotism is always the result of *suggestion*, whether from without—the agent being human or otherwise—or from within, by the influence of the individual mind reacting on itself. The mind's attention being definitely focussed in a fixed direction responds to the influence of the other (master) mind whose powers are brought to bear thereon.

The influence of one mind upon another forms so important a practical factor in the every-day events of life that it is utterly preposterous to deny that such a directive power as is claimed for the process of so-called "hypnotism" can be all idle pretence, as the sect of scoffers will fain have it to be. The effects of the passions of joy and grief, hope and fear, anger and love, sympathy and antipathy, are so frequently—indeed invariably—felt to influence the processes of the circulation, and digestion, and consequently nutrition, of the whole body, that it requires a great deal of hardihood to denounce the pretensions of the hypnotist as a mere sham. The magnetic power of the presence of a Napoleon or a Gladstone had

been felt by millions in their respective generations. That of the former was so familiar to himself that on the occasion of the news being brought to him in his exile in St. Helena of the despaired-of condition of one of his followers, he asked his physician whether it would not be desirable that he should himself suddenly appear at his bedside—knowing, as he had often an opportunity of experiencing, the electric effect which his approach habitually had on any of his devotees when apparently lying at the point of death on the battle-field. The personal influence of the bullying-muscular ruffian, and that of the softly-soothing seducer, have always been recognised in history and in fable, in prose and in poetry, in the most matter-of-fact existence, as well as in the flights of creative imagination. So let us recognise, once and for all, that hypnotic influence is a reality! And let us at the same time recognise how undesirable or dangerous—or demoralising—it is for the susceptible individual to be placed under the hypnotic influence of an objectionable “operator,” or experimentalist.

To the endless mazes of hypnotism—its foundations, and superstructures, and alleys and loopholes, and indescribable tortuosities—Dr. Forel’s volume is one of the nearest approaches to a reliable guide-book that we have had an opportunity of consulting. It is quite idle to attempt a detailed criticism in a review; such a procedure would require a volume nearly as large as that under examination. Accordingly, we will close this notice with thanks to Mr. Armit for his (unusually satisfactory) translation, and to the publishers (and printers and binders) for the excellent taste displayed in the whole “turn-out” of the volume.

K.

The Royal University of Ireland. The Calendar for the Year 1907. Dublin: Alex. Thom & Co. 1907. 8vo. Pp. 549.

THERE is nothing of importance which is new in the Royal University Calendar for 1907. When we turn to

the section setting forth any changes in the courses of study for 1908, we observe (at page 236) the conditions under which a Medical Studentship, tenable for two years and worth £200 per annum, is offered for competition among the graduates in Medicine of the University.

Full information as to the courses for Degrees in Medicine, Surgery, and Obstetrics will be found at page 147 and the following pages up to 190.

A Synopsis of the British Pharmacopœia (1898). By H. WIPPELL GADD, F.C.S., Lecturer on Pharmacy at the University College, Exeter. Sixth Edition, containing a Synopsis of the Poison Laws of Great Britain and Ireland. London: Baillière, Tindall & Cox. 1907. Pp. 227.

THE successive editions of this excellent and most useful little book are always welcome. The author tells us that this new edition is substantially a reprint of the last, in which but few errors were detected. A valuable addition, however, has been made in the form of a synopsis of the Poison Laws of Great Britain and Ireland. Mr. Cyril H. Kirby, solicitor, of London, has assisted in the compilation of this section. As regards the sale of poisons in Ireland, mention should have been made of the fact that the duty of making representations to the Privy Council as to additions to the Schedule of Poisons under the Sale of Poisons (Ireland) Act devolves on the Royal College of Physicians of Ireland.

LITERARY NOTE.

A NEW work by Dr. Edward C. Register, of Charlotte, North Carolina, entitled "Practical Fever Nursing," will soon be published by Messrs. W. B. Saunders & Co., Philadelphia. Dr. Register is well known as the editor of the *Charlotte Medical Journal*, and he is also Professor of the Practice of Medicine in the North Carolina Medical College at Charlotte, N.C. From his varied and ripe experience in the profession Dr. Register is in a position to write authoratively on the subject of "Fever Nursing."

PART III.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—J. MAGEE FINNY, M.D., F.R.C.P.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

[SECTION OF OBSTETRICS.

President—RICHARD D. PUREFOY, M.D., F.R.C.S.I.
Sectional Secretary—HENRY JELLETT, M.D., F.R.C.P.I.

Friday, February 1, 1907.

THE PRESIDENT in the Chair.

An Obstetrical Chart.

DR. THOMAS NEIL exhibited a chart showing a very convenient method of keeping a record of obstetrical cases.

DR. HASTINGS TWEEDY, SIR A. V. MACAN and the PRESIDENT referred to the importance and value of being able to refer to previous records in obstetrical cases.

Formaline Steriliser.

DR. HENRY JELLETT exhibited apparatus for sterilising urethral or other forms of gum-elastic catheters by means of formaline vapour. The exhibit consisted of two instruments—one of which had been brought from Germany by Dr. Gunn, who thought that it had been originally devised by a Japanese; the other Dr. Jellett had made for himself from particulars given by Dr. Gunn. Sterilisation was effected by the constant passage of coal gas, impregnated with formaline vapour through the catheter, which gas was subsequently burnt off in the Bunsen burner, which supplied the necessary heat for generating the

formaline. A series of experiments were undertaken by Dr. Rowlette to determine the efficacy of the steriliser, and he reported as follows:—"I have tested the steriliser with cultures of the following organisms—(1) *B. coli communis*, the most common bladder infection; (2) *Staphylococcus aureus*, another common infection; (3) *B. anthracis*, an organism extremely resistant to disinfectants. Experiments were in each case conducted as follows:—An active fluid culture of a couple of days' standing was employed. In this culture an elastic catheter was allowed to stand for ten minutes. The catheter was then placed in the steriliser for half an hour. It was then dipped and rinsed in melted agar, which was immediately poured out into a Petri dish and incubated at blood heat. In no case did any colonies appear. Controls were employed to establish the vitality of the cultures. The method of sterilisation seems very thorough and satisfactory."

DR. HASTINGS TWEEDY recalled that when the disinfecting properties of formaline were first discussed opinion was strongly against it when vaporised from the solid. If the dry formaline had no sterilising power it must be the coal gas in the apparatus exhibited which acted as the disinfectant.

SIR A. V. MACAN said that anything that made a catheter quite safe after using in an infected case was a most important matter.

DR. KIRKPATRICK said that in experiments on the subject of room disinfection formaline was found to have slight penetrating power. Bacteria could be killed close to the opening of culture tubes, but quite a short way down the disinfection ceased abruptly at a definite line. It was not likely, therefore, to penetrate effectively into the catheters for any considerable distance. Dr. Rowlette's experiments were to a certain effect vitiated by the fact that he probably carried formaline on the catheter into the agar solution, and this formaline naturally prevented growth.

DR. DONNELLY drew attention to the possible action of ordinary coal-gas on metallic instruments, and suggested that experiments should be made to find out whether they would be injured or not.

DR. JELLETT, in reply, said he was not disposed to take the view that formaline in the dry state would not cause sterilisation. The larger apparatus would take in a cystoscope, but he had not tried it on metallic instruments. The same objection would,

however, stand in regard to them as to the use of the apparatus in disinfecting dressings and sponges—viz., that there would be a certain amount of deposit of formaline left on them which would leave sponges and the like in a too irritating state. This objection did not apply to catheters, as they could be washed in sterilised water, and the formaline thus removed. He quite appreciated Dr. Kirkpatrick's objection, but did not see how it was to be overcome.

A Contribution to the Technique of Operations on the Appendages.

DR. HENRY JELLET read a paper on the above subject. He said the paper could be divided into two parts. The first part dealt with the methods, which he approved and adopted, of performing salpingectomy, oöphorectomy, and salpingo-oöphorectomy, as well as plastic operations on the ovaries and tubes. After discussing various practical points connected with the performance of these operations he then suggested that the following principles might be laid down :—(1) Never tie the broad ligament with interlocking sutures or with a Staffordshire knot. The objections to both methods are that—first, they pull the top of the ligament together and so shorten it, and the contracted ligament in turn tends to drag the uterus backwards; secondly, they necessitate the use of silk, as it is difficult or impossible to include so great a mass tightly in a cat-gut ligature; thirdly, there is always a certain amount of risk of the slipping of ligatures so applied unless a considerable amount of tissue is left beyond them, and as this tissue is deprived of blood, and possibly bacteria-laden, it may subsequently slough and give rise to the formation of adhesions or even to general infection. (2) Never use silk in the presence of inflammation, as it tends to become a permanent depository of infection. (3) Never remove more of the appendages than is necessary. The retention of even a portion of the ovary adds greatly to the future comfort of the patient, and if to this is added even the stump of a patent Fallopian tube there is present at any rate the possibility of a future pregnancy instead of the certainty of sterility. (4) Always conclude the operation by performing ventro-suspension of the uterus, otherwise the uterus is almost certain to fall back and contract fresh adhesions, thus often causing the persistence of pain. The second part of the paper dealt with the statistics of thirty cases of adnexal disease on which the speaker had operated

according to the methods and principles mentioned in the first part of the paper. It also contained a table showing the exact nature of the operations in each case, the extent of the lesion, the immediate result, and the condition of the patient when she was last seen.

SIR A. V. MACAN said the paper opened up the whole question of operations on the appendages. The feeling on the Continent was, he said, in favour of the vaginal route as against the abdominal. The question of infection was of great importance. There were four possible infections, and the deciding of which was present was a very important question. Another question was whether it was better to remove the uterus or to hang it up to the abdominal wall. The rule for choice should be—No operation, if possible; next, the least operation possible; and, above all, the retention of function where possible. The possibility of a woman having children in the future had an enormous effect in obviating depression of the mind; and the retention of a sufficiency of ovarian tissue to enable menstruation to continue could not be too highly praised. The feeling abroad in connection with the danger of silk as a focus of infection was that it was impossible to prevent it; hence cat-gut was favoured for everything except the abdominal wall and intestines. The speaker criticised the paper from the point of view of Professor Martin's latest edition, and indicated the latter's method of dealing with cases of infection and tubercular disease.

DR. HASTINGS TWEEDY said that Dr. Jellett's treatment in the cases he had cited was almost identical with his own, and they were agreed on the point of saving as much as possible. There were some points of detail, however, on which they were not in agreement, but probably they did not make much difference either way. For instance, Dr. Jellett objected to the Staffordshire knot; still it had been used successfully for many years, and he (Dr. Tweedy) considered it a quicker method of tying off the broad ligament than any of the methods suggested, and it was less liable to cause subsequent adhesions. There was not, he thought, any second opinion in regard to the use of silk in an infected case; the burying of it in the midst of septic matter must end in disaster. But it had enormous advantages in other cases. If *fine* silk was used, and was boiled in corrosive sublimate, it was capable of resisting germs for five or six days; and he had absolute proof that silk was absorbed. In regard to the question

of drainage, its value lay in the causing of irritation and the exudation of serum that might possibly wash out some of the germs, and do good ; but drainage after twenty-four hours was seldom of any use.

DR. THOMAS NEIL said that silk, being an animal substance, should be absorbable, but it was necessary that it should be unmixed with vegetable fibre.

THE PRESIDENT said he was fully in accord with value of preserving as much of the organs as they could where there was the least possibility of function continuing afterwards. He had been accustomed to tie the broad ligaments *en masse*, and he shared the view that, however more artistic Dr. Jellett's method might be, he was not sure that it had any great advantage over the other. He had no doubt that silk was absorbable. In operations for the removal of the appendages, where a large extent of raw surface was left on the face of the rectum, he had been content to allow the uterus to fall back, hoping thereby to prevent contact with the intestines ; and he thought that in some cases that was better than lifting the uterus above the appendages and leaving a raw surface as a possible source of subsequent adhesions.

DR. JELLETT, in reply, said he knew there was a tendency in favour of the vaginal route, and he brought forward his cases as going a certain way to show that there were no bad results attributable to the abdominal operation. The predominant feature of his series of cases was not so much the accumulation of large quantities of pus in the tubes and ovaries as extensive intestinal adhesions. That being so, he could not have got as good after-results by the vaginal route, nor could he have left the genital organs in as satisfactory a condition as appeared on subsequent examination. He had started with the view that in tubercular cases the entire pelvis should be cleared out ; but in view of two of the cases he recorded he could not help thinking that removal of the diseased portions alone was sufficient. Moreover, primary ovarian infection was very rare. He thought that those speakers who advocated ligature of the broad ligament *en masse* must use silk, and there had been a general consensus of opinion that this was inadvisable.

SECTION OF STATE MEDICINE.

President—F. C. MARTLEY, M.D., F.R.C.P.I.

Sectional Secretary—W. A. WINTER, M.D., F.R.C.P.I.

Friday, February 8, 1907.

THE PRESIDENT in the Chair.

Report of the Viceregal Commission on the Poor Law Service.

DR. THOMAS DONNELLY read a paper on the above subject. He chiefly dealt with the report as it affected the Poor Law Medical Service. With regard to the proposal to form a State Medical Service the author said that the representatives of the people did not want it, while the medical profession were divided in their opinion, although not satisfied with their present position, but in his opinion these different views ought to be capable of adjustment. He then went on to express his approbation of the proposal to establish county hospitals and smaller district hospitals; the latter he thought ought to be established in every dispensary district, while the county hospitals ought, in his opinion, to have an out-patient department attached to them, and be the dispensary for the district. Dr. Donnelly then passed on to the consideration of salaries, &c., of the medical officers in the proposed service, which he thought ought to commence at £200 per annum, rising to £400, with fees, and a residence rent free. The medical officers should be entitled to an annual holiday of one month, and retirement after twenty years' service ought to carry with it a pension equal to half the total salary of the medical officer, and after the age of sixty-five he should be entitled to a pension equal to two-thirds of his total salary. The next point considered by the author of the paper was the Board of Control, as proposed in the report. This he strongly objected to as likely to raise the greatest opposition to the scheme, and advocated instead that all appointments should be in the hands of a Committee elected by the County Councils. As regards entrance to the service, Dr. Donnelly thought all ought, in addition to their ordinary qualifications, to have special certificates in lunacy and obstetrics, and to have served an apprenticeship of twelve months as *locum tenens* in the service. Among the other points considered in the paper were the desirability of appointing County Medical Officers of Health and of granting a small fee for each

case visited at a patient's house. The latter point he strongly advocated, and gave several cogent reasons for its adoption.

Remarks on the Policy with regard to Tuberculosis, outlined in the Report of the Viceregal Poor Law Commission.

PROFESSOR McWEENEY read a paper on the above subject. He began by referring to the increase of tuberculosis in Ireland, mentioned by the Commissioners in par. 102 of their Report. Although quite conscious of the gravity of the problem, he was not at all certain that the figures justified any statement stronger than that whilst the mortality from tuberculosis in England was coming down "by leaps and bounds" it was not showing any tendency to decline in Ireland. The explanation was, no doubt, that whereas in Ireland very little was being done—and that sporadically, in England, amongst other factors, the efforts of independent, whole-time County Medical Officers of Health produced results which could not be hoped for under the excessively bad system which in Ireland placed the Health Officer's interest in direct opposition to his duty. The recommendation of the Commission that the disused workhouses should be converted into consumption sanatoriums deserved their hearty approval, all the more so if Dr. Newsholme's contention be right—that the decrease of the disease in England is due mainly to its increased institutional segregation. The speaker thought it a wise suggestion of the Commission that not only curable but advanced and infective cases should be removed to the contemplated sanatoriums. The removal of such from their homes was one of the most essential parts of the campaign, but in Ireland it would be objected to if there were [not some prospect of cure held out. By proper classification and rigid observance of regulations he thought that the association in one institution of curable and advanced cases might be rendered unobjectionable. The suggestion of the Commission that consumptive inmates of lunatic asylums should be segregated in a few specially adapted workhouse sanatoriums he regarded as particularly valuable, in view of the great difficulty of rendering such cases non-infective. He thought that County Councils should have a free hand in devoting public funds to sanatoriums, and not be limited to one penny in the pound rate as at present. In conclusion, he looked forward with confidence to the growing-up round the Sanatorium of auxiliary institution such as the dispensary and of volunteer philanthropic committees

with the object of providing ex-patients with suitable outdoor or hygienic work, so as to prevent relapse, and sustenance for the wives and families of consumptive workingmen, so as to secure for them while in the sanatorium that peace of mind which is an indispensable factor in the cure. He pointed out how State Invalidity Insurance fulfilled this need in Germany, and expressed the hope that workmen's friendly societies would undertake a similar function here. The speaker concluded by saying that the members of the Commission, two of whom he was glad to see present, had by their statesmanlike report earned the hearty thanks of all interested in the struggle against tuberculosis.

DR. LEONARD KIDD (Enniskillen), said he considered Dr. Donnelly's suggestion that the resident medical officers should do dispensary duty to be impracticable, because if the hospitals were to be levelled up to a high standard it would be a physical impossibility to have high-class surgical work and dispensary work done at the same time. He thought that each large county should have an independent Medical Officer of Health, to whom the dispensary doctors, if they were also Sub-officers of Health, would report. The present method of reporting to the district councils reduced sanitation in the country to a farce. He thought the name "State Service" unfortunate, and suggested a "Public Health and Sanitary Service." What they ought to have was a Board of Public Health presided over by a minister of Cabinet rank. Although a remnant of the Council of the Irish Medical Association had passed a resolution against the service they knew that the Association was practically unanimous in its favour. The profession was overwhelmingly in favour of some such form of service, and that solely in the interests of the sick poor. The only qualification for admission to hospital should be that of sickness. He was altogether opposed to "lines" and recommendations from subscribers, especially shopkeepers. There should, therefore, be an inquiry officer attached to each hospital. The hospitals should be supported by the county rate, but it would be a pity if the interest of charitable people was killed. Governing bodies might be appointed from members of the County Council and people who lived near the hospitals. Salaries should be fixed to bear some ratio to the work done, and should be proportionately larger in the poor districts where private practice was small. The clerical work in the country should be reduced to a minimum

and there should be some central body to purchase and test all drugs and apparatus, and supply them to the country. He did not consider a single workhouse in Ireland suitable as a sanatorium, from a curative point of view.

DR. KENNY (Granard) expressed general approval of the report. He did not think the people would have any objection to the profession taking up the control of the State Service. They might be inclined to dabble in their affairs, but if the profession showed that their chief concern was to do effective work the public would support them. The profession had pronounced itself very strongly in favour of the recommendations of the Commission not only at public meetings but also in the country, where poor law officers were derelict and without means of communicating with the centres in Dublin. The change to an efficient County Service was bound to be beneficial.

DR. WRIGHT (Dalkey) did not think any one could doubt that the National Medical Service would be of great benefit to the sick poor. The carrying out of the recommendations would mean that the younger men would be sent to the outlying districts where they were most needed. Nor could there be any doubt as to its benefits to the profession since it opened up the possibility of promotion. Boards of Guardians would, of course, oppose the recommendations from a natural dislike to have patronage and influence taken from them. The Commission, however, only proposed to take away the election of the medical officers, and he thought any opposition would be got over if it was clearly understood that the State would pay, and that the boards would have full control over their medical officers while holding office. The rates available for sanatoriums should be unlimited.

DR. P. J. GARLAND thought the crusade against consumption should be initiated by a reformation of the Public Health Service in the country. It was controlled not so much by its officers as by the tenement house and slum owners whose interests were so jealously looked after by the local bodies that it was impossible for an active and efficient officer to discharge his duties. That department must be taken over entirely by the State.

MR. M'ARDLE said that shortly before the meeting of the Irish Medical Association he objected very strongly to the State Medical Service under the conditions laid down. Afterwards, when he had learned more about it, he became an enthusiastic supporter

of the recommendations of the Commission. The provisions for the benefit of the people generally were so sound that it would be criminal to oppose the scheme for any petty reasons. He did not think there was any need for an alternative scheme. They should confine themselves to broad principles and not to minor details of policy. He thought the question of consumption held a position second to none in importance in those recommendations. If they could not eliminate it they could check it.

DR. DELAHOYD said the operation of the Poor Law System had had a demoralising effect on the country, and had destroyed thrift. It would be useless for them to support a State Service that would do away with the principle of local control. All entrants should start on equal rights, but there might be certain allowances suited to certain individual conditions.

MR. W. MICKS and DR. COEY BIGGER also spoke and explained some of the recommendations of the Commission that had aroused adverse criticism.

DR. DONNELLY, in replying, said his paper had justified itself in eliciting such a valuable discussion. If they were to get anything done in a reasonable time there must be some compromise. The trend of popular opinion was against centralisation, and the bulk of the people objected to the service.

DR. MCWEENEY, in replying, said he agreed that a penny in the pound rate would be insufficient to cope with tuberculosis, but they should see what they could do with that for a beginning. In view of the tremendous mortality from tuberculosis they ought no longer to postpone their efforts, and should not wait for the remodelling of the Public Health Service.

MR. M'ARDLE proposed the following resolution:—"That the Section of State Medicine of the Royal Academy of Medicine in Ireland desire to express its approval of the suggestion contained in the Report of the Viceregal Poor Law Commission to convert the entire Poor Law Medical Service in Ireland into a National Service, to be paid by the State, to be entered by a competitive examination, the members of such service to be jointly controlled by the central body and the local bodies, and that the medical profession should have one representative on the central body."

DR. CRAIG seconded. The resolution was passed.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the Editor.

VITAL STATISTICS

For four weeks ending Saturday, April 20, 1907.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending April 20, 1907, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 23.7 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,117,547. The deaths registered in each of the four weeks ended Saturday, April 20, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Mar. 30.	April 6	April 13	April 20			Mar. 30	April 6	April 13	April 20	
22 Town Districts	21.2	25.0	23.5	23.7	23.8	Lisburn -	9.1	22.7	22.7	31.8	21.6
Armagh -	13.7	—	6.9	—	5.2	Londonderry	13.5	12.3	16.0	19.6	15.4
Ballymena	9.6	23.9	4.8	—	9.6	Lurgan -	26.6	17.7	17.7	26.6	22.2
Belfast -	20.1	27.0	22.4	23.9	23.8	Newry -	12.6	16.8	25.2	25.2	20.0
Clonmel -	5.	25.6	30.8	51.3	28.2	Newtownards	22.9	45.8	5.7	28.6	25.7
Cork -	20.5	24.0	23.8	21.9	22.4	Portadown -	5.2	10.3	15.5	15.5	11.6
Drogheda -	24.5	4.1	12.3	16.3	14.3	Queenstown	—	6.6	19.8	36.4	13.2
Dublin (Reg. Area)	24.3	28.3	26.6	27.1	26.8	Sligo -	19.2	43.2	24.0	19.2	26.4
Dundalk -	27.9	4.0	16.0	12.0	15.0	Tralee -	21.1	10.6	37.0	—	17.2
Galway -	23.3	15.5	19.4	23.3	20.4	Waterford -	25.3	15.6	17.5	17.5	19.0
Kilkenny -	19.7	49.1	49.1	24.6	35.6	Wexford -	28.0	37.4	14.0	14.0	23.3
Limerick -	24.6	13.7	30.1	17.8	21.6						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, April 20, 1907, were equal to an annual rate of 1.6 per 1,000, the rates varying from 0.0 in fifteen of the districts to 7.8 in Waterford—the 9 deaths from all causes registered in that district including one from scarlet fever, one from enteric fever, and 2 from diarrhoeal diseases. Among the 170 deaths from all causes registered in Belfast are 3 from measles, one from whooping-cough, one from enteric fever, one from diarrhoea, 13 from cerebro-spinal fever, and 14 returned as from *cerebro-spinal meningitis*. In Cork out of a total of 32 deaths, 4 are from whooping-cough. The 5 deaths from all causes registered in Kilkenny include one from whooping-cough; and one of the 4 deaths from all causes in Queenstown is from diphtheria.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 390,691, that of the City being 300,850, Rathmines 35,606, Pembroke 27,854, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, April 20, 1907, amounted to 220—111 boys and 109 girls; and the deaths to 215—101 males and 114 females.

DEATHS.

The registered deaths represent an annual rate of mortality of 28.7 in every 1,000 of the population. Omitting the deaths (numbering 12) of persons admitted into public institutions from localities outside the Area, the rate was 27.1 per 1,000. During the sixteen weeks ending with Saturday, April 20, the death-rate averaged 28.3, and was 1.1 below the mean rate for the corresponding portions of the ten years, 1897–1906.

Included in the deaths (215) there were 10 from measles, 7 from whooping-cough, one from *diarrhoea*, 3 from cerebro-spinal fever, and 5 from influenza. In each of the 3 preceding weeks, deaths from measles were 4, 3, and 7; deaths from whooping-cough were 4, 8, and 7; deaths from diarrhoeal diseases were

one, 0, and 2; deaths from influenza were 2, 5, and 5; and deaths from cerebro-spinal fever were 0, 0, and one.

The deaths from pneumonia comprise 3 from lobar pneumonia, 12 from broncho-pneumonia, and 8 from *pneumonia* (not defined.)

The total number of deaths from all forms of tuberculous disease amounted to 46, as against the totals 38, 51, and 31 in each of the preceding 3 weeks. The total (46) included 15 deaths from tubercular phthisis, 15 deaths returned as from *phthisis*, 5 deaths from tubercular meningitis, 2 deaths each from tubercular peritonitis and *tabes mesenterica*, and 7 deaths from other forms of the disease.

The deaths of 3 infants, prematurely born, were registered.

The deaths from diseases of the brain and nervous system include 2 deaths from meningitis (one of the latter being that of a child between the ages of one year and 5 years)—4 deaths of infants under one year of age were from *convulsions*.

Diseases of the heart and blood vessels accounted for 30 deaths, and 29 persons succumbed to bronchitis.

Of 3 deaths from accidental causes, one was by burning and one was due to poisoning by carbolic acid.

In 3 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases comprise the deaths of 2 infants under one year of age and the death of a person aged 72 years.

Seventy-one of the persons whose deaths were registered during the week were under 5 years of age (35 being infants under one year, of whom 7 were under one month old) and 51 were aged 60 years and upwards, including 19 persons aged 70 and upwards, of whom 5 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly,

Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended April 20, 1907, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epi- demic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Mar. 30	-	*	*	4	3	-	6	-	3	5	19	-	*	*	-	46
	Apr. 6	-	*	*	1	2	-	4	-	4	4	4	-	*	*	-	19
	Apr. 13	-	*	*	4	1	-	5	-	5	6	12	-	*	*	-	33
	Apr. 20	-	*	*	1	-	-	8	-	8	7	8	-	*	*	1	29
Rathmines and Rathgar Urban District	Mar. 30	-	*	*	1	-	-	-	-	-	-	-	-	*	*	-	1
	Apr. 6	-	*	*	5	-	-	-	-	-	-	-	-	*	*	-	5
	Apr. 13	-	*	*	2	-	-	-	-	-	1	-	-	*	*	-	3
	Apr. 20	-	*	*	-	-	-	1	-	-	-	-	-	*	*	-	1
Pembroke Urban District	Mar. 30	-	-	-	-	-	-	1	-	1	-	-	-	*	*	26	28
	Apr. 6	-	-	-	-	-	-	-	-	-	-	-	-	*	*	8	8
	Apr. 13	-	-	-	1	-	-	-	-	1	-	-	-	*	*	24	26
	Apr. 20	-	1	-	-	-	-	-	-	1	-	1	-	*	*	35	38
Blackrock Urban District	Mar. 30	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Apr. 6	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Apr. 13	-	*	*	1	-	-	-	-	-	-	-	-	*	*	-	1
	Apr. 20	-	*	*	4	-	-	-	-	-	-	-	-	*	*	-	4
Kingstown Urban District	Mar. 30	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Apr. 6	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Apr. 13	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Apr. 20	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
City of Belfast	Mar. 30	-	*	*	16	-	-	2	1	7	13	14	-	*	*	31	84
	Apr. 6	-	*	*	5	-	-	3	-	1	5	3	1	*	*	27	45
	Apr. 13	-	*	*	7	-	-	5	2	2	6	5	1	*	*	24	52
	Apr. 20	-	*	*	6	-	-	3	1	6	8	11	-	*	*	36	71

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended Saturday, April 20, 1907, 20 cases of measles were admitted into hospital, 24 patients were discharged, there were 4 deaths, and 78 cases remained under treatment at its close.

Seven cases of scarlet fever were admitted to hospital, 5 were discharged, and 42 cases remained under treatment at the close

of the week. This number is exclusive of 13 convalescents under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

Six cases of typhus were admitted to hospital during the week, and 6 cases remained under treatment at its close.

Six cases of diphtheria were admitted to hospital, 2 were discharged, and 20 patients remained under treatment at the close of the week.

Seven cases of enteric fever were admitted to hospital, 5 were discharged, and 16 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 17 cases of pneumonia were admitted to hospital, 10 were discharged, and 47 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, April 20, 1907, in 76 large English towns, including London (in which the rate was 16.1), was equal to an average annual death-rate of 16.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 20.0 per 1,000, the rate for Glasgow being 22.2 and that for Edinburgh 18.0.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, M.D., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ending April 20. From this Report it appears that of a total of 48 cases notified 19 were of scarlet fever, 12 of diphtheria, 8 of erysipelas, and 2 of enteric fever. Among the 348 cases of infectious diseases in hospital at the close of the week were 121 cases of scarlet fever, 62 of measles, 37 of diphtheria, 35 of whooping-cough, 17 of erysipelas, and 8 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N, Long. 6° 15' W., for the Month of April, 1907.

Mean Height of Barometer, - - -	29.767 inches.
Maximal Height of Barometer (25th, at 9 a.m.),	30.357 „
Minimal Height of Barometer (3rd, at 9 a.m.),	29.113 „
Mean Dry-bulb Temperature, - - -	46.2°.
Mean Wet-bulb Temperature, - - -	43.4°.
Mean Dew-point Temperature, - - -	40.2°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.251 inch.
Mean Humidity, - - -	80.4 per cent.
Highest Temperature in Shade (on 23rd),	67.0°.
Lowest Temperature in Shade (on 15th),	33.2°.
Lowest Temperature on Grass (Radiation) (5th),	28.1°.
Mean Amount of Cloud, - - -	65.9 per cent.
Rainfall (on 22 days), - - -	2.622 inches.
Greatest Daily Rainfall (on 2nd), - - -	.380 inch.
General Directions of Wind, - - -	N.W., W.

Remarks.

A cloudy, unsettled, rainy or, rather, showery month. It would have been distinctly cold, like April, 1906, had it not been for a warm spell between the 22nd and 25th—the mean temperature of the 23rd was 60.2°, that of the 24th was 59.1°. With the exception of this brief foretaste of summer, the month was cool, cloudy, and marked by a prevalence of winds from polar quarters, principally the North-west. About two-thirds of the sky was clouded—the percentage of cloud at 9 a.m. being as much as 75. The evening skies were clear—at 9 p.m. the cloudiness was no more than 56.7 per cent. The estimated duration of sunshine was only 112.5 hours, or a daily average of 3.75 hours, compared with 165 hours, or a daily average of 5.3 hours in March, with its shorter days.

In Dublin the arithmetical mean temperature (47.2°) was 0.4° below the average (47.6°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 46.2°. In the forty-three years ending with 1907, April was coldest in 1879 (the cold year) (M. T. = 44.5°), and warmest in 1893 (M. T. = 51.4°). In 1906 the M. T. was 45.9°.

The mean height of the barometer was 29.767 inches, or 0.083 inch below the average value for April—namely, 29.850 inches.

The mercury rose to 30.357 inches at 9 a.m. of the 25th, having fallen to 29.113 inches at 9 a.m. of the 3rd. The observed range of atmospheric pressure was, therefore, 1.244 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 46.2°, or only 0.9° above the value for March, 1907. Using the formula, *Mean Temp.* = *Min.* + (*Max.*—*Min.* × .476), the value is 46.8°, or 0.5 below the average mean temperature for April, calculated in the same way, in the thirty years, 1871–1900, inclusive (47.3°). The arithmetical mean of the maximal and minimal readings was 47.2°, compared with a thirty years' (1871–1900, inclusive) average of 47.6°. On the 23rd the thermometer in the screen rose to 67.0°—wind, S.W.; on the 15th the temperature fell to 33.2°—wind, N.W. The minimum on the grass was 28.1° on the 5th.

The rainfall was 2.622 inches, distributed over 22 days. The average rainfall for April in the thirty-five years, 1866–1900, inclusive, was 1.950 inches, and the average number of rainy days was 15. The rainfall, therefore, was considerably in excess of the average, while the number of rainy days much exceeded it. In 1877 the rainfall in April was very large—4.707 inches on 21 days. On the other hand, in 1873, only .498 inch was measured on 8 days. In 1906, 1.829 inches fell on 18 days.

Fog was observed on the 4th, 5th, 10th, and 15th. Thunder occurred in a hail-storm about noon of the 27th. High winds were noted on 9 days, but only once reached the force of a gale—on the 13th. Hail fell on the 7th, 8th, 10th, 27th and 30th; snow and sleet on the 3rd and 6th. The temperature rose above 60° in the screen on 3 days. It failed to reach 50° on 4 days. It never fell to 32° in the screen, but on 6 nights it fell to or below 32° on the grass. The mean lowest temperature on the grass was 36.7°, compared with 33.6° in 1906, 37.3° in 1905, 39.1° in 1904, 37.0° in 1903, 36.8° in 1902, 37.3° in 1901, and only 31.6° in 1887.

The rainfall in Dublin during the four months ending April 30th amounted to 6.288 inches on 64 days, compared with 9.120 inches on 77 days in 1906, 7.844 inches on 71 days in 1905, 9.056 inches on 74 days in 1904, 10.176 inches on 78 days in 1903, 7.175 inches on 59 days in 1902, 6.520 inches on 58 days in 1901, only 3.203 inches on 46 days in 1891, and a thirty-five years' average of 8.120 inches on 65 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. William J. Good, returns the mean height of the barometer as 29.767 inches, the highest reading observed being 30.361 inches at 9 a.m. of the 25th, the lowest 29.122 inches at 9 a.m. of the 3rd. The mean temperature was 46.5°, the mean dry-bulb reading at 9 a.m. and 9 p.m. being 46.4°. Rain fell on 20 days to the amount of 2.591 inches, .329 inch being measured on the 2nd. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 116.7, giving a daily average of 3.9 hours. The corresponding figures for April, 1904, were 168 hours and 5.6 hours, for 1905, 105 hours and 3.5 hours, and for 1906, 182.0 hours and 6.1 hours. The highest temperature in the shade was 66.1° on the 23rd, the lowest was 31.1° on the 28th. The highest reading of the black bulb *in vacuo* thermometer (solar radiation) was 121.5° on the 23rd. The lowest temperature on the grass (terrestrial radiation) was 21.8° on the 5th. The mean earth temperatures at 9 a.m. were—at a depth of one foot, 46.5°, at a depth of 4 feet, 46.4°.

Dr. T. H. Peyton returns the rainfall at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, at 2.646 inches on 20 days, the maximal fall in 24 hours being .695 inch on the 2nd. Since January 1, 1907, the rainfall at this station amounts to 6.137 inches on 55 days. The thermometers in the screen rose to 65.2° on the 23rd and 24th, and fell to 35.0° on the 6th, 7th, 29th and 30th. At Newcastle, the rainfall in March, 1907, was 1.418 inches on 12 days, the maximum in 24 hours being .546 inch on the 16th. The mean temperature of the month was 46.8°.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall amounted to 2.610 inches on 18 days, compared with 1.755 inches on 9 days in 1906, 2.835 inches on 18 days in 1905, only .930 inch on 14 days in 1904, 1.165 inches on 9 days in 1903, 3.105 inches on 14 days in 1902, and 2.800 inches on 15 days in 1901. The heaviest fall in 24 hours was .630 inch on the 2nd. The total rainfall in 1907, up to April 30th, was 5.700 inches on 54 days, compared with 9.420 inches on 50 days in 1906, 8.495 inches on 59 days in 1905, 9.037 inches on 68 days in 1904, 12.385 inches on 63

days in 1903, 9.215 inches on 48 days in 1902, and 10.060 inches on 56 days in 1901.

Dr. Arthur G. Price reports that at Clonsilla, Greystones, the rainfall of April was 2.26 inches, on 18 "raindays," the heaviest daily rainfalls being .58 inch on the 2nd and .49 inch on the 5th. The mean temperature was 46°, the extremes being—highest, 68° on the 23rd, lowest, 30° on the 4th.

According to Mr. Robert O'Brien Furlong, C.B., at Cloneevin, Killiney, Co. Dublin, 2.41 inches of rain fell on 23 days. The maximal fall in 24 hours was .44 inch on the 2nd. Hail or sleet fell on 8 days. The average rainfall in April of the twenty-two years, 1885–1906, was 1.807 inches on 14.8 days. Since January 1, 1907, 5.68 inches of rain fell at this station on 58 days, compared with 8.53 inches on 73 days in 1906, 9.17 inches on 69 days in 1905, 9.02 inches on 69 days in 1904, 9.67 inches on 76 days in 1903, 8.08 inches on 59 days in 1902, and 7.62 inches on 59 days in 1901. The temperature range was from 33° to 62°.

Dr. Arthur S. Goff reports that the rainfall at Lynton, Dundrum, Co. Dublin, was 2.43 inches on 23 days, compared with 1.68 inches on 17 days in 1906, 3.14 inches on 24 days in 1905, 1.48 inches on 18 days in 1904, 1.35 inches on 16 days in 1903, 2.63 inches on 16 days in 1902, and 1.19 inches on 12 days in 1901. The greatest daily rainfall was .59 inch on the 2nd. The mean shade temperature was 46.4°, compared with 48.3° in 1901, 46.6° in 1902, 45.9° in 1903, 48.9° in 1904, 46.4° in 1905, and 45.4° in 1906. The thermometric range was from 64° on the 23rd and 24th to 33° on the 15th. Hail fell on the 27th and 30th.

Mr. T. Bateman, of The Green, Malahide, Co. Dublin, returns the rainfall at 2.313 inches on 19 days, compared with 1.336 inches on 13 days in 1906, and 1.773 inches on 22 days in 1905. The greatest fall in 24 hours was .335 inch on the 2nd. The shade mean temperature was 44.0°, compared with 43.6° in 1906 and 44.8° in 1905, the extremes being—highest, 67° on the 23rd; lowest, 28.5° on the 4th.

In Cork, according to Mr. W. Miller, the rainfall amounted to 2.89 inches on 19 days, .75 inch being measured on the 5th. Since January 1, 1907, 6.95 inches of rain have fallen in Cork against an average, for the first four months of the year, of 12.78 inches.

At 21 Leeson Park, Dublin, Dr. Christopher Joynt, F.R.C.P.I.,

measured 2.595 inches on 22 days, the largest amount recorded in 24 hours being .420 inch on the 2nd.

The rainfall recorded by Miss Muriel O'Sullivan at White Cross, Stillorgan, was 2.458 inches on 23 days, compared with 1.700 inches on 19 days in 1906, and 3.122 inches on 24 days in 1905. The maximum in 24 hours was .500 inch on the 2nd.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 22 days to the amount of 2.442 inches, the greatest measurement in 24 hours being .315 inches on the 13th.

Dr. J. Byrne Power, F.R. Met. Soc., D.P.H., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 46.4° , being 1.3° below the average for April during the 20 previous years (1873-83 and 1898-1906). The extremes were—highest, 65.5° on the 23rd and 24th; lowest, 32.5° on the 15th. At Bournemouth the mean was 46.6° , the extremes being—highest, 69° on the 24th; lowest, 31° on the 18th and 20th. The average mean temperature for the past winter (Nov., Dec., Jan., Feb. and March) was—at Kingstown, 44.1° ; at Bournemouth, 41.7° . The total winter rainfall was—at Kingstown, 6.16 inches; at Bournemouth, 8.34 inches. The mean daily range of temperature at Kingstown was 10.2° , at Bournemouth it was 14.6° . The mean temperature of the sea at Sandycove bathing-place was 46.4° , or 0.5° above the average for the month during the previous 9 years. The mean relative humidity was 77 per cent., being 1 per cent. above the average for the month during the previous 6 years. The rainfall for the month was 2.44 inches on 20 days, or 0.67 inch above the average for April during 17 previous years (1873-83 and 1901-06). At Bournemouth the rainfall amounted to 3.40 inches on 19 days. The duration of bright sunshine was 136.0 hours, which was 32.1 hours below the average for the month during the previous 6 years. At Southport it was 160.3 hours, and at Bournemouth 166.9 hours.

PERISCOPE.

ECZEMA CAUSED BY DENTIFRICES.

HAVING encountered a number of cases of eczema of the lips or chin, caused by the use of aromatic dentifrices, Galewski experimented to determine the ingredient which causes this. In most cases it was found to be due to peppermint oil, the omission of this ingredient causing disappearance of the symptoms, but many of his patients could not tolerate any essential oil whatever. He recommends those with sensitive skins or a predisposition to eczema, to avoid all aromatic dentifrices and mouth washes, and to employ a simple unperfumed neutral powder, such as prepared chalk.—*Apoth. Zeitung*. and *the Prescriber*, January, 1907.

THE TEMPERATURE IN HERPES.

THE analogy between Herpes Zoster and an acute exanthem is sometimes very striking. The temperature is nearly always raised, sometimes to as much as 101° on the first and second days of the appearance of the rash. With this pyrexia there is an accompanying feeling of malaise or even a slight rigor. After the third day, when no more vesicles have erupted, the temperature regains the normal.—*The Hospital*, May 18, 1907.

THE CHILD'S SKIN.

THE chief peculiarity about the treatment of skin disease in children is that the reaction to the remedies applied is more prompt than in adults. Moreover, since the risk of absorption is by no means inconsiderable, ointments and lotions containing powerful poisons, such as carbolic acid or mercury, should not be employed, unless well diluted, over large surfaces of the body. Certain cutaneous lesions are also very transient, so that one is left with their results, notably the scratchmark and the scab. The history of the mode of onset of an eruption, as given by an intelligent mother or nurse, is, therefore, of greater value than the statement of the patient himself, who might even be unaware of the existence of anything wrong with his skin.—*The Hospital*, May 18, 1907.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

"Elixoid" Pine Tar Compound.

THIS is a pleasantly flavoured fluid preparation, containing, in each fluid drachm, "Pinol," tar, terpin hydrate ($\frac{1}{2}$ of a grain), tincture of Virginian prune (B.P.) min. $1\frac{1}{2}$, balsam of tolu, and ipecacuanha (min. $\frac{1}{2}$ of the liquid extract of the British Pharmacopœia). This combination is very effective in the treatment of affections of the respiratory organs, as its active components are excreted by the lungs, and thus exert a slow, steady and continuous action. It allays pulmonary irritation, and is of special service in chronic bronchitis and bronchorrhœa. It soothes and relieves coughs, and may be used in cases in which the administration of preparations of opium is inadvisable. Half a fluid drachm to two fluid drachms may be given three or four times a day, after meals, or small doses may be given more frequently. The "Elixoid" is issued in bottles of 4 ozs. by Messrs. Burroughs, Wellcome & Company, of Snow Hill Buildings, London, E.C.

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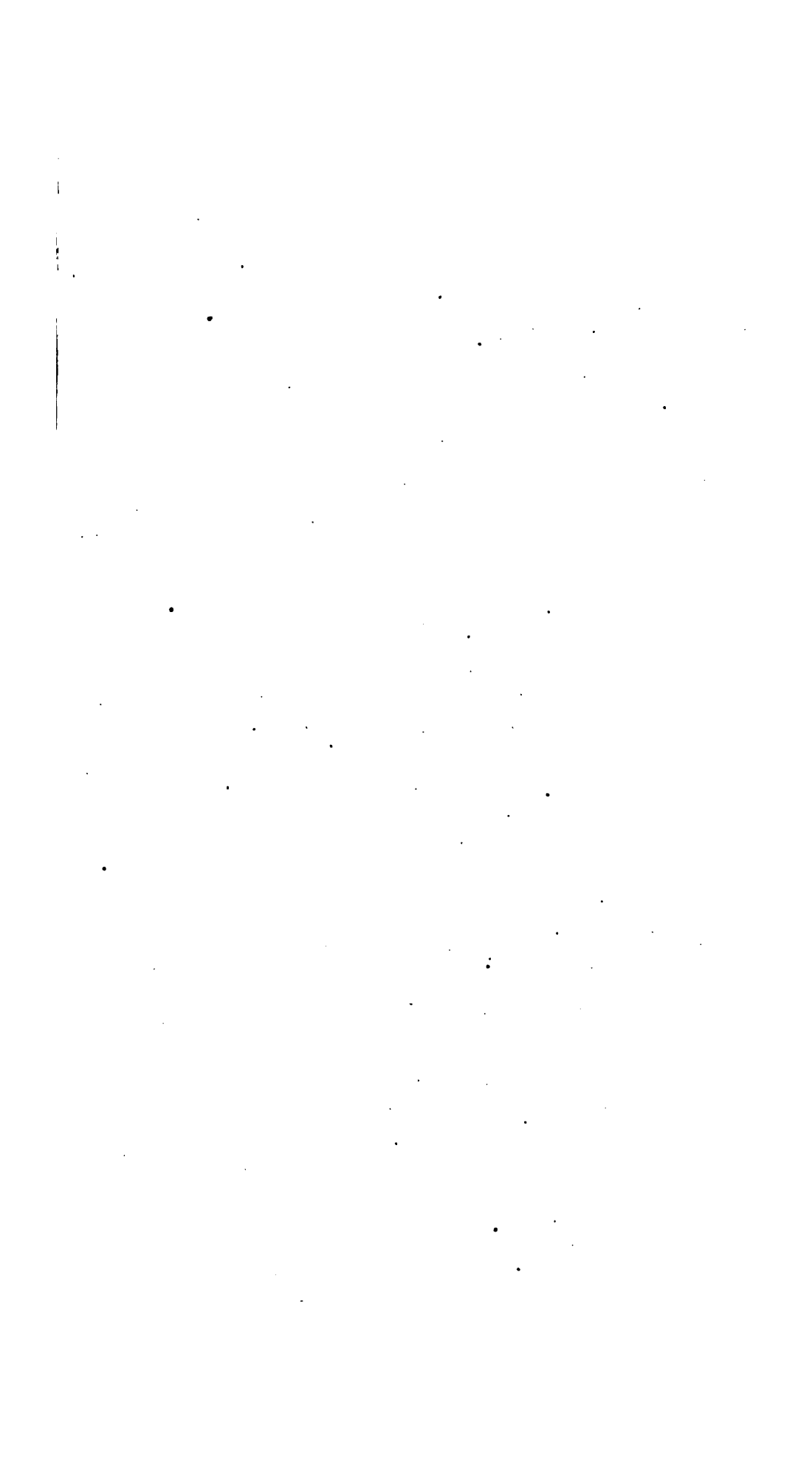
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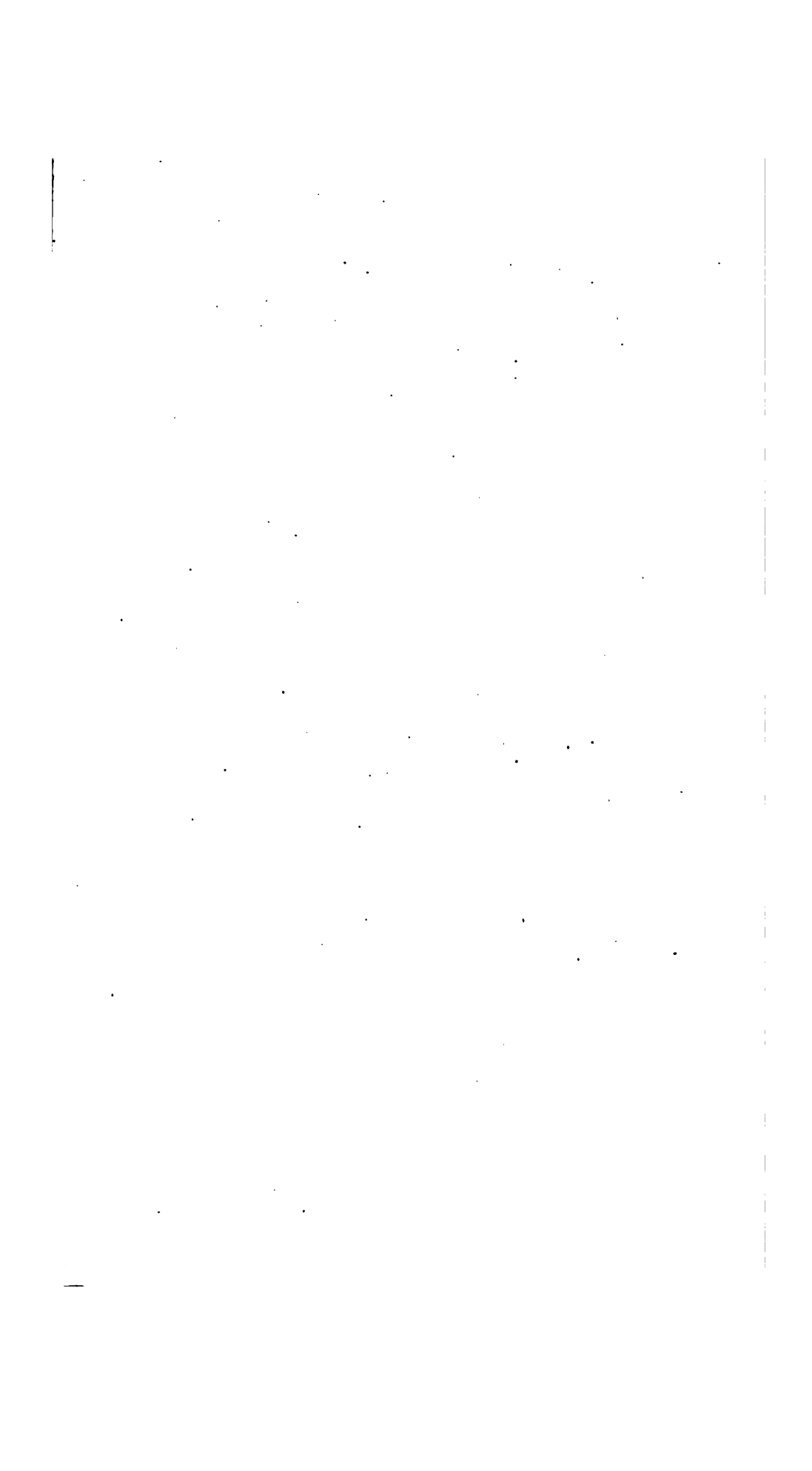
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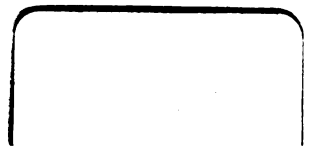






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